











# STATE COLLEGE RECORD

---

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The North Carolina State College  
of  
Agriculture and Engineering  
of  
THE UNIVERSITY OF NORTH CAROLINA



## CATALOG ISSUE

1942-1943

*Announcements for the Session 1943-1944*

STATE COLLEGE STATION  
RALEIGH

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# COLLEGE CALENDAR

1943-1944

	Fall 1943	Winter 1944	Spring 1944
College Faculty Meeting, 3 P.M., September 17	January 4		
Registration of Freshmen.....	September 21	†January 5	March 27
*Registration of new students admitted with advanced standing .....	†September 22	January 5	March 27
*Registration of sophomores, juniors, seniors and graduate students .....	September 24	January 6	March 28
Class work begins.....	September 27	January 7	March 29
Anniversary Day (not a holiday) ...	October 4		
Last day for registration and changes .....	October 5	January 14	April 4
Midterm reports due .....	November 1	February 3	May 1
Scholarship Day (not a holiday).....			May 10
Final date for dropping a course without a grade of "F".....	November 13	February 12	May 10
Thanksgiving (not a holiday) ...	November 25		
Final examinations begin.....	December 10	March 15	June 2
Term ends .....	December 16	March 21	June 8
Commencement Exercises .....			June 10

## SUMMER SCHOOL—1944

	First Session	Second Session
Registration of all students .....	June 14	July 26
Class work begins .....	June 15	July 27
Final date for registration .....	June 15	July 27
Term ends .....	July 25	September 2

\* An extra fee is charged for registration after the day designated.

† New students with advanced standing of less than 45 credits should register with the freshmen.

‡ Each student should register with his class as indicated on his registration card.  
Due to emergency this calendar is subject to change.

## 1943

JANUARY							APRIL							JULY							OCTOBER										
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S				
					1	2						1	2	3					1	2	3					1	2				
3	4	5	6	7	8	9	4	5	6	7	8	9	10	4	5	6	7	8	9	10	3	4	5	6	7	8	9				
10	11	12	13	14	15	16	11	12	13	14	15	16	17	11	12	13	14	15	16	17	10	11	12	13	14	15	16				
17	18	19	20	21	22	23	18	19	20	21	22	23	24	18	19	20	21	22	23	24	17	18	19	20	21	22	23				
24	25	26	27	28	29	30	25	26	27	28	29	30		25	26	27	28	29	30	31	24	25	26	27	28	29	30				
31																					31										
FEBRUARY							MAY							AUGUST							NOVEMBER										
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S				
		1	2	3	4	5							1		1	2	3	4	5	6	7					1	2	3	4	5	6
7	8	9	10	11	12	13	2	3	4	5	6	7	8	8	9	10	11	12	13	14	7	8	9	10	11	12	13				
14	15	16	17	18	19	20	9	10	11	12	13	14	15	15	16	17	18	19	20	21	14	15	16	17	18	19	20				
21	22	23	24	25	26	27	16	17	18	19	20	21	22	22	23	24	25	26	27	28	21	22	23	24	25	26	27				
28							23	24	25	26	27	28	29	29	30	31					28	29	30								
							30	31																							
MARCH							JUNE							SEPTEMBER							DECEMBER										
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S				
		1	2	3	4	5			1	2	3	4	5				1	2	3	4					1	2	3	4			
7	8	9	10	11	12	13	6	7	8	9	10	11	12	5	6	7	8	9	10	11	5	6	7	8	9	10	11				
14	15	16	17	18	19	20	13	14	15	16	17	18	19	12	13	14	15	16	17	18	12	13	14	15	16	17	18				
21	22	23	24	25	26	27	20	21	22	23	24	25	26	19	20	21	22	23	24	25	19	20	21	22	23	24	25				
28	29	30	31				27	28	29	30				26	27	28	29	30			26	27	28	29	30	31					

## 1944

JANUARY							APRIL							JULY							OCTOBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
						1							1							1	1	2	3	4	5	6	7	
2	3	4	5	6	7	8	2	3	4	5	6	7	8	2	3	4	5	6	7	8	8	9	10	11	12	13	14	
9	10	11	12	13	14	15	9	10	11	12	13	14	15	9	10	11	12	13	14	15	15	16	17	18	19	20	21	
16	17	18	19	20	21	22	16	17	18	19	20	21	22	16	17	18	19	20	21	22	22	23	24	25	26	27	28	
23	24	25	26	27	28	29	23	24	25	26	27	28	29	23	24	25	26	27	28	29	29	30	31					
30	31						30							30	31													
FEBRUARY							MAY							AUGUST							NOVEMBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
				1	2	3	4	5	6				1	2	3	4	5	6							1	2	3	4
6	7	8	9	10	11	12	7	8	9	10	11	12	13	6	7	8	9	10	11	12	5	6	7	8	9	10	11	
13	14	15	16	17	18	19	14	15	16	17	18	19	20	13	14	15	16	17	18	19	12	13	14	15	16	17	18	
20	21	22	23	24	25	26	21	22	23	24	25	26	27	20	21	22	23	24	25	26	19	20	21	22	23	24	25	
27	28	29					28	29	30	31				27	28	29	30	31			26	27	28	29	30			
MARCH							JUNE							SEPTEMBER							DECEMBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
				1	2	3					1	2	3					1	2	3					1	2		
5	6	7	8	9	10	11	4	5	6	7	8	9	10	3	4	5	6	7	8	9	3	4	5	6	7	8	9	
12	13	14	15	16	17	18	11	12	13	14	15	16	17	10	11	12	13	14	15	16	10	11	12	13	14	15	16	
19	20	21	22	23	24	25	18	19	20	21	22	23	24	17	18	19	20	21	22	23	17	18	19	20	21	22	23	
26	27	28	29	30	31		25	26	27	28	29	30		24	25	26	27	28	29	30	24	25	26	27	28	29	30	
																					31							

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- RALPH WALDO CUMMINGS, *Professor of Agronomy*.  
B.S., N. C. State College; Ph.D., Ohio State University.
- PHILIP HARVEY DAVIS, *Instructor in English*.  
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- ROY STYRING DEARSTYNE, *Professor of Poultry Science*.  
B.S., University of Maryland; M.S., N. C. State College.
- JOHN BEWLEY DERIEUX, *Professor of Theoretical Physics*.  
B.S., M.S., University of Tennessee; Ph.D., University of Chicago.
- WILLIAM PHILLIP DICKENS, *Instructor in Physical Education*.  
B.S., University of Tennessee.
- CHARLES GLENN DOAK, *Assistant Professor of Physical Education*.
- THOMAS CLARE DOODY, *Associate Professor of Chemical Engineering*.  
B.S., M.S., Ph.D., University of California.
- JUSTUS CARLYLE DRAKE, *Instructor in English*.  
B.A., M.A., Wake Forest College.
- ROSS IRWIN EDWARDS, *Instructor in Geological Engineering*.  
B.S., N. C. State College.
- HARRY DARBY EPTING, *Assistant Professor of Military Science and Second Lieutenant, Signal Corps Reserve; Tactics*.  
B.S. in E.E., Georgia School of Technology; Graduate, Company Officers' Course, Signal School.
- JOSEPH NEWTON FARLOW, *Instructor in Engineering Mechanics*.  
B.C.E., N. C. State College.
- †CHARLES EDWARD FELTNER, *Assistant Professor of Engineering Mechanics*.  
B.S., Virginia Polytechnic Institute; S.M.C.E., University of North Carolina.
- \*ELTON FISHER, *Instructor in Chemistry*.  
B.S., M.S., Brigham Young University; Ph.D., Iowa State College.
- HILBERT ADAM FISHER, *Professor of Mathematics*.  
M.S., N. C. State College; graduate, United States Naval Academy; graduate, United States Submarine School; L.L.D., Lenoir Rhyne College.
- JAMES FONTAINE, *Associate Professor of Civil Engineering and Assistant Director of the Engineering Experiment Station*.  
B.E., M.S., N. C. State College.
- †GASTON GRAHAM FORNES, *Assistant Professor Mechanical Engineering*.  
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† On military leave.

\* Resigned.

- GARNET WOLSEY FORSTER, *Professor of Agricultural Economics.*  
B.S., Cornell University; M.S., Ph.D., University of Wisconsin.
- JOHN ERWIN FOSTER, *Professor of Animal Husbandry and Dairying.*  
B.S., N. C. State College; M.S., Kansas State College; Ph.D., Cornell University.
- ALVIN MARCUS FOUNTAIN, *Associate Professor of English.*  
B.E., M.S., N. C. State College; M.A., Columbia University; Ph.D., Peabody College.
- RAYMOND SPIVEY FOURAKER, *Professor of Electrical Engineering.*  
B.S. in E.E., A. & M. College of Texas; M.S., University of Texas.
- RICHARD GILDART FOWLER, *Instructor in Physics.*  
A.B., Albion College; M.S., Ph.D., University of Michigan.
- WILLIAM GEORGE FRIEDRICH, *Instructor in Aeronautical Engineering.*  
M.M.E., Dr. of Technical Sciences, Polytechnical University of Prague; M.Ae.E., Ecole Nationale Aeronautique (Paris).
- BENTLEY BALL FULTON, *Professor of Entomology.*  
B.A., Ohio State University; M.S., Chicago University; Ph.D., Iowa State College.
- MONROE EVANS GARDNER, *Professor of Horticulture.*  
B.S., Virginia Polytechnic Institute.
- HERMAN CHRISTIAN GAUCER, *Assistant Professor of Poultry Science.*  
B.S., Connecticut State College; M.S., N. C. State College.
- CHARLES NELSON GAYLORD, *Assistant Professor of Engineering Mechanics.*  
B.S.C.E., Ohio University; M.S.E., University of Michigan.
- ‡ABE GELBART, *Instructor in Mathematics.*  
B.Sc. Dalhousie University; Ph.D., Massachusetts Institute of Technology.
- PAUL DAVID GENTLE, *Instructor in Military Science and Tactics.*  
Sergeant, DEML, U. S. Army.
- HARVEY TAYLOR GIBSON, *Instructor in English.*  
A.B., Furman University; M.A., Duke University.
- GEORGE WALLACE GILES, *Associate Professor of Agricultural Engineering.*  
B.S., University of Nebraska; M.S., University of Missouri.
- KARL B. GLENN, *Assistant Professor of Electrical Engineering.*  
B.E., M.S., N. C. State College.
- JAMES HENRY GRADY, *Assistant Professor of Architecture.*  
B. Arch., Ohio State University.
- RICHARD ELLIOTT GREAVES, *Assistant Professor of Poultry Science.*  
B.S., Wake Forest College; B.S., N. C. State College.
- ‡ARTHUR FREDERICK GREAVES-WALKER, *Professor of Ceramic Engineering.*  
Cer.E., Ohio State University; D.Sc., Alfred University.
- RALPH WALDO GREEN, *Associate Professor of Marketing.*  
B.S., Cornell University; M.S., N. C. State College.
- ROBERT EDWARD LEE GREENE, *Associate Professor of Agricultural Economics.*  
B.S., M.S., North Carolina State College; Ph.D., Cornell University.
- DAVID WOLTER GREGORY, *Instructor in Poultry Science.*  
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- WALTON CARLYLE GREGORY, *Assistant Professor of Agronomy.*  
B.A., Lynchburg College, M.A., Ph.D., University of Virginia.
- ALBERT HARVEY GRIMSHAW, *Professor of Textile Chemistry and Dyeing.*  
Graduate of the New Bedford Textile School; B.S., M.S., N. C. State College.
- CLAUDE DELBERT GRINNELLS, *Associate Professor of Veterinary Science.*  
B.S., M.S., University of Minnesota; D.V.M., Cornell University.
- †FRANK FARRIER GROSECLOSE, *Professor of Industrial Engineering.*  
B.S. in M.E., M.S. in M.E., Virginia Polytechnic Institute.

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‡ On leave.

- FREDERICK MORGAN HAIG, *Professor of Animal Husbandry and Dairying*.  
B.S., University of Maryland; M.S., N. C. State College.
- MRS. RUTH BADGER HALL, *Instructor in Modern Languages*.  
A.B., Oberlin College; M.A., University of North Carolina.
- CHARLES HORACE HAMILTON, *Professor of Rural Sociology*.  
B.A., Southern Methodist University; M.S., Texas A. & M. College; Ph.D., University of North Carolina.
- REINARD HARKEMA, *Associate Professor of Zoology*.  
A.B., Calvin College; Ph.D., Duke University.
- THOMAS PERRIN HARRISON, *Dean Emeritus of the College; Editor of Official College Publications*.  
B.S., Citadel; Ph.D., Johns Hopkins University; LL.D., Citadel.
- THOMAS ROY HART, *Professor of Weaving and Designing*.  
B.S., T.E., M.S., N. C. State College.
- †LODWICK CHARLES HARTLEY, *Professor of English*.  
B.A., Furman University; M.A., Columbia University; Ph.D., Princeton University.
- \*PAUL HENRY HARVEY, *Associate Professor of Field Crops*.  
B.S., University of Nebraska; Ph.D., Iowa State College.
- ARTHUR COURTNEY HAYES, *Assistant Professor of Textile Chemistry and Dyeing*.  
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- CHARLES MCGEE HECK, *Professor of Physics*.  
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- \*DAVID ELDRIDGE HENDERSON, *Assistant Professor of Industrial Engineering*.  
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- ANDY T. HENDRIX, *Associate Professor of Agricultural Engineering*.  
B.S.M.E., M.S.M.E., B.S.E.E., University of Tennessee.
- WILLIAM NORWOOD HICKS, *Professor of Ethics and Religion*.  
B.E., M.S., N. C. State College; A.B., Duke University; M.A., Oberlin College.
- JOHN THOMAS HILTON, *Professor of Yarn Manufacture*.  
Diploma Bradford Durfee Textile School; B.S., M.S., N. C. State College.
- THOMAS IRA HINES, *Assistant Professor of Physical Education*.  
B.S., N. C. State College; M.A., University of North Carolina.
- LAWRENCE EARLE HINKLE, *Professor of Modern Languages*.  
B.A., University of Colorado; M.A., Columbia University; D.S.es L., Dijon University.
- ELMER GEORGE HOEFER, *Professor of Mechanical Engineering*.  
B.S. in M.E., M.E., University of Wisconsin.
- JULIUS VALENTINE HOFMANN, *Director of the Division of Forestry*.  
B.S.F., M.F., Ph.D., University of Minnesota.
- SIDNEY W. HOLMAN, *Instructor in Agronomy*.  
In charge of Cotton Classing Service, U. S. Department of Agriculture, North Carolina.
- ROBERT HOOKE, *Instructor in Mathematics*.  
A.B., A.M., University of North Carolina; A.M., Ph.D., Princeton University.
- JOHN ISAAC HOPKINS, *Instructor in Physics*.  
B.S., A.M., Ph.D., Duke University.
- EARL HENRY HOSTETLER, *Professor of Animal Husbandry*.  
B.S. in Agr., Kansas State Agricultural College; M.Agr. M.S., N. C. State College.
- FRANKLIN IRWIN, *Instructor in English*.  
A.B., Dartmouth College; Ph.D., Princeton University.
- THOMAS EDWARD HYDE, *Instructor in Mechanical Engineering*.
- ‡THEODORE SEDGWICK JOHNSON, *Professor of Sanitary Engineering*.  
B.S., M.S., Denison University; C.E., Ohio State University.

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‡ On leave.

\* Resigned.

† On military leave.

- WALTER EDWARD JORDAN, *Associate Professor of Chemistry.*  
B.S., M.A., Wake Forest College; M.S., N. C. State College.
- LEROY MONROE KEEVER, *Associate Professor of Electrical Engineering.*  
B.E., M.S., N. C. State College.
- HARRY SEARS KIEVAL, *Instructor in Mathematics.*  
A.B., Cornell University; A.M., University of Cincinnati.
- HENDERSON GRADY KINCHELOE, *Assistant Professor of English.*  
A.B., University of Richmond; A.M., Harvard University.
- † WILLIAM WURTH KRIEGL, *Associate Professor of Ceramic Engineering.*  
B.S. in Civil and Ceramic Engineering, University of Washington; M.S., Montana School of Mines; Dr. Ing., Technische Hochschule, Hanover, Germany.
- WALTER MICHAEL KULASH, *Instructor in Zoology.*  
B.S., M.S., Ph.D., Massachusetts State College.
- ARTHUR I. LADU, *Professor of English.*  
A.B., Syracuse University; M.A., Ph.D., University of North Carolina.
- \* ROBERT EDGAR LAKE, *Instructor in Mechanical Engineering.*  
B.S., M.S., University of Alabama; Ph.D., Pennsylvania State College.
- CLAUDE MILTON LAMBE, *Assistant Professor of Civil Engineering.*  
B.E., N. C. State College.
- CLAUDE MILTON LAMBE, JR., *Instructor in Ceramic Engineering.*  
B.Cer.E., N. C. State College.
- LOUIS J. LAMPKE, *Associate Professor of Military Science and Tactics.*  
Lieutenant Colonel, Infantry, U. S. Army; Graduate, Tank School; Graduate, Infantry School; Graduate, Company Officers' Course.
- FORREST WESLEY LANCASTER, *Associate Professor of Physics.*  
B.S. in Ch.E., Purdue University.
- NILS GUNNAR LANGE, *Assistant Professor of Agricultural Economics.*  
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- FRED TIMMS LANGFORD, *Assistant Professor of Military Science and Tactics.*  
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- † BRYON ELMER LAUER, *Professor of Chemical Engineering.*  
B.S. in Ch.E., Oregon State College; M.S. in Ch.E., Ph.D., University of Minnesota.
- MARC C. LEAGER, *Professor of Statistics and Accounting.*  
B.S., M.S., University of Minnesota; Ph.D., Columbia University.
- JOHN EMERY LEAR, *Professor of Electrical Engineering.*  
B.S. in E.E., Virginia Polytechnic Institute; E.E., Texas A. & M. College.
- WILLIAM DANIEL LEE, *Assistant Professor of Agronomy.*  
B.S., N. C. State College.
- † CHARLES ROMEO LEFORT, *Assistant Dean of Students.*  
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- SAMUEL GEORGE LEHMAN, *Professor of Plant Pathology.*  
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- JOHN ANTHONY LEIPOLD, *Instructor in Military Science and Tactics.*  
Master Sergeant, DEMI, U. S. Army.
- PAUL BONAR LEONARD, *Instructor in Mechanical Engineering.*  
B.S., Ohio State University.
- † JACK LEVINE, *Associate Professor of Mathematics.*  
A.B., University of California at Los Angeles; Ph.D., Princeton University.
- JOHN GARY LEWIS, *Associate Professor of Knitting.*  
B.S., M.S., N. C. State College.

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† On military leave.

\* Resigned.

- \*DAVID ALEXANDER LOCKMILLER, *Professor of History and Political Science.*  
B.Ph., M.A., Emory University; LL.B., LL.D., Cumberland University; Ph.D., University of North Carolina.
- RICHARD HENRY LOEPPERT, *Instructor in Chemistry.*  
B.S., Northwestern University; Ph.D., University of Minnesota.
- ROY LEE LOVVORN, *Associate Professor of Agronomy.*  
B.S., Alabama Polytechnic Institute; M.S., University of Missouri; Ph.D., University of Wisconsin.
- JOHN ROBERT LUDINGTON, *Professor of Industrial Arts Education.*  
B.S., Ball State Teachers College; M.A., Ph.D., Ohio State University.
- JAMES FULTON LUTZ, *Professor of Agronomy.*  
B.S., N. C. State College; M.A., Ph.D., University of Missouri.
- †FRANK HALLAM LYELL, *Assistant Professor of English.*  
A.B., University of Virginia; M.A., Columbia University; Ph.D., Princeton University.
- JOSEPH THOMAS LYNN, *Instructor in Physics.*  
A.B., Vanderbilt University; M.S., Ohio State University.
- CHARLES WALKER MADDISON, *Foreman of Foundry.*
- CARROLL LAMB MANN, *Professor of Civil Engineering.*  
B.S., C.E., N. C. State College.
- WILLIAM ROSSER MANN, *Assistant Professor of Aeronautics.*  
B.S., N. C. State College.
- ROGER POWELL MARSHALL, *Professor of English.*  
B.A., Wake Forest College; M.A., Columbia University; M.S., N. C. State College.
- SELZ CABOT MAYO, *Assistant Professor of Rural Sociology.*  
A.B., Atlantic Christian College; M.S., N. C. State College; Ph.D., University of North Carolina.
- FREDERICK HAROLD MCCUTCHEON, *Associate Professor of Zoology.*  
B.S., M.S., North Dakota State College; Ph.D., Duke University.
- †WILLIAM MCGEHEE, *Professor of Psychology.*  
B.A., University of the South; M.A., Ph.D., Peabody College.
- ROBERT LEROY McMILLAN, *Instructor in Business Law.*  
A.B., M.A., Wake Forest College; LL.B., Columbia University.
- \*\*FRANK BARNARD MEACHAM, *Assistant Professor of Zoology and Entomology.*  
B.S., M.S., N. C. State College.
- JEFFERSON SULLIVAN MEARES, *Associate Professor of Physics.*  
B.S., University of South Carolina; M.S., N. C. State College.
- ZENO PAYNE METCALF, *Director of Instruction, School of Agriculture and Forestry, Professor of Zoology, and Director of Graduate Studies.*  
B.A., Ohio State University; D.Sc., Harvard University.
- GORDON KENNEDY MIDDLETON, *Professor of Agronomy.*  
B.S., N. C. State College; M.S., Ph.D., Cornell University.
- EDWIN LAWRENCE MILLER, JR., *Instructor in Geology.*  
B.S. in M.E., E.M., Missouri School of Mines and Metallurgy.
- JOHN FLETCHER MILLER, *Professor of Physical Education and Athletics.*  
B.Pd., Central Missouri Teachers' College; B.P.E., Springfield College of Physical Education.
- WILLIAM DYKSTRA MILLER, *Associate Professor of Forestry.*  
B.A., Reed College; M.F., Ph.D., Yale University.
- THEODORE BERTIS MITCHELL, *Professor of Zoology and Entomology.*  
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\* Resigned.

\*\* Resigned effective January 1, 1948.

† On military leave.

- REUBEN O. MOEN, *Professor of Business Administration.*  
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- †PERRY EARL MOOSE, *Assistant Professor of Mechanical Engineering.*  
B.S., N. C. State College; M.S. in C.E., Purdue University.
- JOHN WESLEY MORGAN, *Instructor in Chemistry.*  
A.B., A.M., Duke University.
- WILLIAM EDWIN MOSER, *Instructor in Textiles.*  
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- CAREY GARDNER MUMFORD, *Professor of Mathematics.*  
B.A., Wake Forest College; A.M., Ph.D., Duke University.
- †HOWARD M. NAHIKIAN, *Assistant Professor of Mathematics.*  
A.B., M.A., Ph.D., University of North Carolina.
- ‡WILLIAM MCCORMICK NEALE, *Instructor in Mechanical Engineering.*  
B.E., M.E., N. C. State College.
- THOMAS NELSON, *Dean of the Textile School.*  
D.Sc., N. C. State College.
- JOHN HERVEY NICHOLS, *Instructor in Electrical Engineering.*  
B.S. in E.E., M.E.E., N. C. State College.
- JOHN PAUL NICKELL, *Instructor in English.*  
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- RAY LEONARD OVERCASH, *Instructor in Chemical Engineering.*  
B.Ch.E., N. C. State College; M.S., Michigan State College.
- EDWIN HUGH PAGET, *Associate Professor of English.*  
B.L., Northwestern; M.A., University of Pittsburgh.
- CHARLES BENJAMIN PARK, *Instructor Emeritus in Machine Shop.*
- HUBERT VERN PARK, *Assistant Professor of Mathematics.*  
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- ‡JOHN MASON PARKER, III, *Assistant Professor of Geology.*  
A.B., A.M., Ph.D., Cornell University.
- WILLIAM LOCKWOOD PARKER, *Instructor in Physics.*  
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- †LESLIE RENDALL PARKINSON, *Associate Professor of Aeronautical Engineering.*  
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- JAMES WELCH PATTON, *Associate Professor of History and Political Science.*  
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- JEHU DEWITT PAULSON, *Associate Professor of Architecture.*  
B.F.A., Yale University.
- ROBERT JAMES PEARSALL, *Assistant Professor of Electrical Engineering.*  
B.E., N. C. State College.
- ELWOOD LAKE PERRY, *Instructor in Mechanical Engineering.*  
B.S., Lenoir Rhyne College.
- JAMES RODNEY PILAND, *Assistant Professor of Agronomy.*  
B.S., Wake Forest College; M.S., N. C. State College.
- JOSHUA PLUMMER PILLSBURY, *Professor of Landscape Architecture.*  
B.S., Pennsylvania State College.
- †JOSEPH ALEXANDER PORTER, JR., *Assistant Professor of Weaving and Designing.*  
B.S., N. C. State College.
- EDMUND WESLEY PRICE, JR., *Instructor in Civil Engineering.*  
B.C.E., N. C. State College.

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† On leave.

‡ On military leave.



- GEORGE KEITH QUINNEY, *Assistant Professor of Military Science and Tactics.*  
Second Lieutenant, Signal Corps-Reserve; Graduate, Company Officers' Course, Signal School.
- GLENN ORVICE RANDALL, *Associate Professor of Horticulture.*  
B.S., University of Arkansas; M.S., Iowa State College.
- EDGAR EUGENE RANDOLPH, *Professor of Chemical Engineering.*  
A.B., A.M., Ph.D., University of North Carolina.
- ROBERT FRANKLIN RAUTENSTRAUCH, *Assistant Professor of Aeronautical Engineering.*  
B.S., Princeton University; M.S., New York University.
- BAXTER BYERLY REDMON, *Instructor in Mechanical Engineering.*  
B.M.E., N. C. State College.
- WILLIS ALTON REID, *Assistant Professor of Chemistry.*  
B.S., Wake Forest College; Ph.D., Wisconsin University.
- ROBERT BARTON RICE, *Professor of Mechanical Engineering.*  
B.S., Tufts College; A.M., Columbia University.
- †† WALLACE CARL RIDDICK, *Dean Emeritus of the School of Engineering and Professor of Hydraulics.*  
A.B., University of North Carolina; C.E., LL.D., Lehigh University; LL.D., Wake Forest College.
- JACKSON ASHCRAFT RIGNEY, *Associate Professor of Agronomy and Experimental-Statistics.*  
B.S., New Mexico State College; M.S., Iowa State College.
- ALLYN PRESTON ROBINSON, *Instructor in English.*  
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- MACON ROGERS ROWLAND, *Assistant Professor of Mechanical Engineering.*  
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- JOHN DAVID SANDERS, *Instructor in Military Science and Tactics.*  
Corporal, DEML, U. S. Army.
- GEORGE HOWARD SATTERFIELD, *Professor of Biochemistry.*  
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- HOWARD ERNEST SATTERFIELD, *Professor of Mechanical Engineering.*  
B.S. in M.E., M.E., Purdue University.
- IRA OBED SCHAUB, *Dean of the School of Agriculture and Forestry and Director of Agricultural Extension.*  
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- † ROBERT SCHMIDT, *Associate Professor of Horticulture.*  
B.Sc., Rutgers University.
- ‡ HERBERT FREDERICK SCHOOF, *Instructor in Zoology and Entomology.*  
B.S., M.S., N. C. State College; Ph.D., University of Illinois.
- WAYLAND PRITCHARD SEAGRAVES, *Instructor in Mathematics.*  
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- LOUIS WALTER SEEGER, *Assistant Professor of History.*  
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- JOHN FRANK SEELY, *Assistant Professor of Chemical Engineering.*  
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- ALFRED O. SHAW, *Professor of Animal Industry.*  
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- HOWARD BURTON SHAW, *Professor of Industrial Engineering.*  
A.B., B.C.E., University of North Carolina; A.M., Harvard University.

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†† Deceased.

‡ On leave.

† On military leave.

- LUTHER SHAW, *Professor of Plant Pathology.*  
B.S., N. C. State College; M.S., University of Arkansas; Ph.D., University of Wisconsin.
- WILLIAM FRANK SHEALY, *Instructor in Mathematics.*  
B.A., Newberry College.
- ALFRED BERNARD ROWLAND SHELLEY, *Assistant Professor of English.*  
B.S., Tufts College; A.M., Harvard University.
- MARSHALL LEROYCE SHEPHERD, *Assistant Professor of Military Science and Tactics.*  
Captain, Infantry-Reserve; B.S., N. C. State College; M.A., Cornell University.
- † WILLIAM EDWARD SHINN, *Professor of Weaving and Designing.*  
B.S., M.S., N. C. State College.
- MERLE FRANKLIN SHOWALTER, *Associate Professor of Chemistry.*  
A.B., Indiana University; M.S., Purdue University.
- CLARENCE B. SHULENBERGER, *Professor of Accounting.*  
A.B., Roanoke College; A.M., Columbia University.
- ROSS EDWARD SHUMAKER, *Professor of Architecture.*  
B.Arch., Ohio State University; Registered Architect.
- IVAN VAUGHAN DETWEILER SHUNK, *Associate Professor of Botany.*  
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- GEORGE KELLOGG SLOCUM, *Associate Professor of Forestry.*  
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- BENJAMIN WARFIELD SMITH, *Assistant Professor of Agronomy.*  
B.A., M.A., University of Virginia; Ph.D., University of Wisconsin.
- CLYDE FUHRMAN SMITH, *Assistant Professor of Entomology.*  
B.S., M.S., Utah State Agricultural College; Ph.D., Ohio State University.
- GEORGE WALLACE SMITH, *Professor of Engineering Mechanics.*  
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- JOHN WARREN SMITH, *Professor of Industrial Education.*  
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- † RAYMOND FRANKLIN STAINBACK, *Assistant Professor of Physics.*  
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- ROSS OLIVER STEVENS, *Professor of Zoology.*  
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- ROBERT EDWARD STIEMKE, *Associate Professor of Civil Engineering.*  
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- ROBERT LEGRANDE STONE, *Associate Professor of Ceramic Engineering.*  
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- CHARLIE CARMEN STOTT, *Assistant Professor of Military Science and Tactics.*  
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- CHARLES FREDERICK STROBEL, *Instructor in Mathematics.*  
A.B., A.M., University of Buffalo; Ph.D., University of Illinois.
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- HORACE CARTER THOMAS, *Instructor in Military Science and Tactics.*  
Technical Sergeant, DEML, U. S. Army.
- CLARENCE EDWARD THOMPSON, *Instructor in Mathematics.*  
B.S., Geneva College; M.A., Duke University.

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† On military leave.

- JOHN RAMSON TIMMERMAN, *Instructor in English.*  
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- CECIL V. TOLAND, *Instructor in Military Science and Tactics.*  
Sergeant, DEML, U. S. Army.
- ROBERT WESLEY TRUITT, *Instructor in Aeronautical Engineering.*  
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- ††HARRY TUCKER, *Professor of Highway Engineering and Director of the Engineering Experiment Station.*  
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- †BLAKE RAGSDALE VAN LEER, *Dean of the School of Engineering.*  
B.S. in E.E., M.E., Purdue University; M.S., University of California.
- WILLIAM GARDNER VAN NOTE, *Associate Professor of Metallurgy.*  
Ch.E., Rensselaer Polytechnic Institute; M.S., University of Vermont; Ph.D., Pennsylvania State College.
- LILLIAN LEE VAUGHAN, *Professor of Mechanical Engineering, and Acting Dean of the School of Engineering.*  
B.S., N. C. State College; M.E., Columbia University.
- HERMAN HUSBAND VESTAL, *Assistant Professor of Military Science and Tactics.*  
Captain, Infantry-Reserve; B.S., N. C. State College; Graduate, Infantry School, Company Officers Course.
- †EDMUND MEREDITH WALLER, *Assistant Professor of Physical Education, and Assistant Coach.*  
A.B., Vanderbilt University; M.A., Peabody College.
- †ROBERT SULLIVAN WARREN, *Assistant Professor of Physical Education and Head Coach of Basketball.*  
D.O., American School of Osteopathy; B.S., N. C. State College; M.A., University of North Carolina.
- DAVID STATHEM WEAVER, *Professor of Agricultural Engineering.*  
B.S., Ohio State University; M.S., N. C. State College.
- JAMES GRAY WEAVER, *Associate Professor of Horticulture.*  
B.S., M.S., N. C. State College.
- BERTRAM WHITTIER WELLS, *Professor of Botany.*  
A.B., M.A., Ohio State University; Ph.D., University of Chicago.
- FRED BARNETT WHEELER, *Professor of Practical Mechanics and Superintendent of Shops.*  
B.S., M.E., N. C. State College.
- RAYMOND CYRUS WHITE, *Instructor in Chemistry.*  
B.S., Davis Elkins College; M.S., Ph.D., West Virginia University.
- LARRY ALSTON WHITFORD, *Assistant Professor of Botany.*  
B.S., M.S., N. C. State College; Ph.D., Ohio State University.
- CHARLES BURGESS WILLIAMS, *Professor Emeritus of Agronomy.*  
B.S., M.S., N. C. State College.
- †FRED CARTER WILLIAMS, *Assistant Professor of Architectural Engineering.*  
B.S., N. C. State College; B.S., University of Illinois; Registered Architect.
- HARVEY PAGE WILLIAMS, *Professor of Mathematics.*  
B.A., William and Mary College; M.A., Duke University.
- LEON FRANKLIN WILLIAMS, *Professor of Organic Chemistry.*  
A.B., A.M., Trinity College; Ph.D., Johns Hopkins University.
- NORWOOD WADE WILLIAMS, *Assistant Professor of Poultry.*  
B.S., M.S., N. C. State College.
- ARTHUR JOHN WILSON, *Professor of Analytical Chemistry.*  
B.S., M.S., N. C. State College; Ph.D., Cornell University.
- THOMAS LESLIE WILSON, *Assistant Professor of English.*  
A.B., Catawba College; A.M., Wofford College.
- MERLE WESLEY WING, *Instructor in Zoology.*  
B.S., University of Maine.

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† On military leave.

EDWIN WEEMS WINKLER, *Assistant Professor of Electrical Engineering.*  
S.B., Montana State College; M.S., University of North Carolina.

SANFORD RICHARD WINSTON, *Professor of Sociology.*  
A.B., Western Reserve University; Ph.D., University of Minnesota.

LOWELL SHERIDAN WINTON, *Associate Professor of Mathematics.*  
B.S., Grove City College; M.A., Oberlin College; Ph.D., Duke University.

THOMAS WILMONT WOOD, *Associate Professor of Industry and Personnel Management.*  
B.S., A.M., University of Alabama; Ph.D., University of North Carolina.

JOE WILLIE WRAY, *Instructor in Mathematics.*  
B.S., University of Georgia.

LENTHALL WYMAN, *Professor of Forestry.*  
A.B., M.F., Harvard University.

WILLARD KENDALL WYNN, *Assistant Professor of English.*  
A.B., Wofford College; M.A., Emory University; M.A., Columbia University.

### Teaching Fellows, 1942-43

David W. Harris	Animal Husbandry
John C. Herron	Zoology
Maurice Rothberg	Rural Sociology
Richard K. Speairs	Botany

## II. GENERAL INFORMATION

### THE COLLEGE

**Establishment.**—The North Carolina State College of Agriculture and Engineering is one of the Land-Grant Colleges established under the provisions of the Morrill Act, passed by the Congress of the United States, June 2, 1862. The first session of the College was that of 1889-1890. Prior to that date, the funds received by the State under the Land-Grant Act had been used by the University of North Carolina, at Chapel Hill.

The name, The North Carolina College of Agriculture and Mechanic Arts, used in the establishment of the College, was changed by the General Assembly—the Legislature of the State—in 1917 to its present form.

In its session of 1931, the General Assembly passed an Act, of which the following is the first section: "That the University of North Carolina, the North Carolina State College of Agriculture and Engineering, and the North Carolina College for Women are hereby consolidated and merged into 'The University of North Carolina'."

This Act placed the three institutions under one Board of Trustees and one President, the separate affairs of each institution being in charge of its own Administrative Dean. The effect of the Act, by correcting unnecessary duplication and focalizing the work of each of its members, has tended to create a strong, unified State University.

**Location.**—State College Campus of one hundred twenty-five acres, lies within the limits of Raleigh, a mile and a quarter west of the State Capitol, on United States Highway, Route 1. Adjoining the Campus westward, occupying four hundred forty-five additional acres, are the College poultry yards, and the Central State Experiment Farms. A mile still farther westward, the College has acquired a tract of thirteen hundred acres, which is maintained as livestock farms by the Department of Animal Husbandry and Dairying. The part of this tract—about 500 acres—not adapted for these farms is being used by the Department of Forestry for demonstrations and development.

**Organization.**—The organization of State College has as its objectives Campus Teaching, Extension Teaching, and Research.

Campus Teaching occupies the School of Agriculture and Forestry, the School of Engineering, the Division of Teacher Education, the Textile School, the Graduate Division, the Basic Division, and the Summer Session. The Schools and the Basic Division are organized for teaching by Departments. The details of the organization, the equipment, and the work of each School and Department are given under the various headings in the later pages of this Catalog. The work of the Summer Session is set forth in a special issue of STATE COLLEGE RECORD published each year in December, a copy of which is sent on request.

The Department of Military Training, including as the Reserve Officers Training Corps students of all classes in all Schools, is placed immediately under the College Administration.

Extension Teaching is directed under the Division of College Extension. The work is closely coordinated with the work in the regular Departments of the College. In certain short courses, most of them in Agriculture and in Engineering, Extension overlaps with Campus Teaching. The whole State is covered in the activities of the Agricultural Extension Service.

Research is conducted, by individuals or by Departments, very generally at State College. Specially organized work is done through the Agricultural Experiment Station, the Engineering Experiment Station, and the Textile Research Department.

The Campus.—The Campus of State College presents an agreeably rolling terrain with adequate space west and south for expansion. Located on the eastern edge of the Piedmont Region of the State, within twenty-five miles of the Coastal Plain, opportunity is afforded for a pleasing variety of trees and shrubs in the landscaping. Fortunately, in the early years of the College a long-range plan for growth was made. This plan is now being intelligently followed.

Under the sections of the Catalog devoted to Schools and their Departments and to Divisions, are placed descriptions of buildings, laboratories, and facilities of each of these.

General Service Buildings.—Holladay Hall, named for Colonel Alexander Quarles Holladay, first President of the College, 1889-1899, contains the general administrative offices of the College, and the offices and classrooms of the Military Department.

The D. H. Hill Library, named for Doctor Daniel Harvey Hill, President of the College, 1908-1916, was dedicated in 1926. It contains now over 62,000 volumes, exclusive of Government documents, and pamphlets.

The Y. M. C. A. building, the erection of which was made possible by a donation from the Rockefeller Foundation, serves the religious and social life of the College.

The Dining Hall, an H-shaped building, with kitchens, storage rooms, pantries, refrigerators, and other mechanical devices in the center and basement, has at each side, front and rear, a spacious dining hall. The service is on the cafeteria plan.

The Frank Thompson Gymnasium, named in honor of Frank Martin Thompson, distinguished athlete, graduate of State College, Class of 1910, killed in service during the World War, is thoroughly equipped and modern in all its appointments.

The Infirmary, recently enlarged and renovated, is a model of a small, special hospital.

Pullen Hall, named in honor of R. Stanhope Pullen, donor of first sixty acres of the College land, has classrooms on the first and basement floors, on the second floor, the College auditorium.

The Power Plant, recently erected, centrally located, furnishes heat, electric power, and hot water to all buildings on the Campus using these services.

Eleven College Dormitories now in use accommodate approximately 1400 students. Other students will room, as at present, in homes in the vicinity of the Campus and in fraternity houses. Full information in regard to dormitories is sent by the Registrar to applicants accepted for admission to the College, or by the Superintendent of Dormitories.

## INFORMATION FOR APPLICANTS

### I. Admission

1. The first step toward admission to State College is to get from the Registrar, who is to be addressed at State College Station, Raleigh, a certificate blank. After the blank has been filled out and signed by the principal or the superintendent of the high school or other preparatory school, the certificate is sent to the Registrar for his decision on admission, notice of which will be given promptly.

The certificate must contain a statement from the school last attended of the good moral character of the applicant.

2. Undergraduate students may be admitted as regular or special.

(1) A regular student is one who is registered in a four-year curriculum.

(2) Women may be admitted as regular students provided they register in one of the regular curricula.

(3) A special student is a person of mature age already engaged in some vocation in which instruction is desired. Such person may, upon presenting a satisfactory record of education and upon recommendation of the Dean of the School concerned, be admitted without the usual entrance requirements.

Special students are not eligible for a degree, nor does work done as a special student have value for credit toward a degree. A special student cannot represent the College in any intercollegiate contest nor become a member of a fraternity.

3. Requirements for admission of regular students.

(1) Sixteen years is the minimum age for admission.

(2) Graduation from a State accredited high school, or an approved preparatory school, and fifteen units of credit, specified and elective as indicated below, are required for admission to the freshman class of four-year courses.

\*(3) Nongraduates who have completed the eleventh grade may be admitted under the following conditions:

(a) If they have the specified subject requirements and units of credit indicated below.

(b) If they are in the upper third of their class scholastically.

(c) If they have the principal's recommendation.

(d) If they pass successfully the College entrance examination.

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\* This method of admission is experimental and its continuance will depend upon the results obtained.

- (4) Applicants graduated by nonaccredited four-year high schools may be admitted by passing successfully an entrance examination such as that prepared by the Examination Committee of the North Carolina College Conference.
- (5) In exceptional instances a person of mature age may be admitted by the Dean of a School on the basis of his ability to carry the regular work of a curriculum in that School.
- (6) Subjects and units of credit (a unit is allowed for a subject pursued for a year, five periods a week, each period being at least forty minutes, and successfully passed in a high school accredited by the North Carolina State Department of Public Instruction or other preparatory school accredited by competent authority).

**Specified Subjects.—****Units of Credit**

English: Grammar, Composition, Literature .....	3
History: United States or equivalent .....	1
Algebra to Quadratics .....	1
Algebra, Quadratics through Progressions .....	.5
Plane Geometry .....	1
*Solid Geometry .....	.5
Any science listed under Elective Subjects .....	1

A student not offering for credit History of the United States is required to take the subject in his College course.

**Elective Subjects.**—The figure following each subject represents the maximum number of credits which will be accepted, including those in required subjects. Fewer than that number may be accepted.

Science—	Units of Credit	History and Social Science—	Units of Credit
Biology .....	1	United States or equivalent .....	1
Botany .....	1	English .....	1
Chemistry .....	1	General .....	1
General Science .....	1	Medieval and Modern .....	1
Geography .....	1	Ancient .....	1
Physics .....	1	North Carolina .....	.5
Physiology and Hygiene .....	1	Civics .....	1
Zoölogy .....	1	Sociology .....	1
		Economics .....	1
<b>Language—</b>		<b>Mathematics—</b>	
English .....	4	Algebra .....	2.5
French .....	2	Business Arithmetic .....	1
German .....	2	Plane Geometry .....	1
Latin .....	4	Solid Geometry .....	.5
Spanish .....	2	Trigonometry .....	.5

\* Solid Geometry is required only in the School of Engineering. A special course is offered in college for applicants who do not present this credit for entrance. No college credit is allowed for the course.



Miscellaneous Subjects (a total of not over 4 credits allowed)

Agriculture .....	4	Drawing .....	1
Bookkeeping .....	1	Mechanic Arts .....	2
Stenography and Typewriting ..	1	Mill Practice .....	1
Any other high-school subject .....		1	

4. Advanced standing is allowed on work done in approved colleges upon presentation of a certificate or transcript, duly signed and sealed, to the Director of Registration. The transcript is evaluated in the Registration Office to determine the maximum amount of credit and is then sent to the Dean of the School concerned for a detailed evaluation of credits which can be used in the curriculum selected.

Each applicant for admission to N. C. State College as a transfer from another college or a university must send with her or his application for admission a remittance of five dollars, to be known as the application fee. This remittance must be drawn in favor of N. C. State College, Raleigh, and should be in the form of a check or money order. No transcript of record sent in support of an application for admission will be examined and evaluated until the remittance is received. If the record received is not satisfactory for the applicant's admission, the remittance will be returned; if the record is satisfactory and the application is approved, the remittance will be deposited with the Cashier and will be applied as a credit at the time of the applicant's first registration. If the record is satisfactory and the application is approved and the applicant fails to matriculate at N. C. State College, the deposit is forfeited by the applicant.

Because of the scholastic requirements imposed upon resident students, advanced standing credit cannot be allowed for courses passed at other institutions with the lowest passing letter grade, or corresponding numerical grades. At least one year in residence is required for a degree.

## II. Expenses

### Undergraduate

1. The total College expenses of a student resident of North Carolina need not for the regular College year exceed \$550, for a nonresident of this State, \$720. These amounts include the cost of room and board, heat and lights, tuition, fees and deposits, books, drawing instruments, laundry, and necessary incidentals. They do not include clothing, pocket money, or other incidentals.

2. Nonresidents of North Carolina pay an additional tuition charge. The College Administration has defined a nonresident student as a person who comes into North Carolina from another state for the purpose of attending college.

In order to draw a clear line between resident and nonresident students, the Administration has ruled that all students whose parents have not been domiciled in North Carolina for more than six months immediately preceding the day of their first enrollment in the institution shall be termed non-resident students, with the following exceptions:

- (1) Students twenty-one years of age at the time of their first matriculation who have resided in North Carolina for more than one year preceding the day of their first enrollment.
- (2) Children of regular employes of the Federal Government stationed in the State of North Carolina.
- (3) Children of regular employes of the Federal Government who are employed outside of the State, but who through law are permitted to retain their North Carolina citizenship.

Students cannot claim a change in their resident status after matriculating. Students furnishing incomplete or incorrect information in order to obtain the special State-resident status shall be liable for dishonorable dismissal.

3. The State law requires the prepayment of College accounts: the time and the amount of payments must conform to this law. For the convenience of students, charges for tuition and fees may be made in two installments, one in September, one in January. Six percent is charged on payments deferred beyond these dates.

4. Applications for credit must be made to the Business Office of the College, prior to registration day. Applications made later, if granted, will require a special fee of \$2 and possibly also the fee for late registration.

5. For each failure to meet deferred payments as scheduled, a fee of \$5 is charged.

6. Tuition and fees for residents of North Carolina as regular undergraduates or as special students scheduled for twelve or more credit hours are as follows:

	Fall Quarter	Winter Quarter	Spring Quarter
Tuition	\$30	\$30	\$30
College Fees	25	25	25
Student Activities	4	3	2
Athletic Fee	8	5	2
Agricultural, and Agricultural Education Students Fees	2	2	
Engineering Students Fees	2	1	
Textile Students Fees	2	1	
General Deposit	20		

Special Student Fees include subscription to student publications of the school in which registered.

Note.—Tuition and Fees are subject to change by the Board of Trustees without advance notice.

\* Of the Engineering fee of \$3, the students pay \$1 for a year's subscription to "The Southern Engineer."

7. The general deposit, in case of first year men, will be charged with cost of necessary expendable Military Supplies, such as shoes, books, etc. The balance of this deposit, in case of all students, is refundable at the end of the year, after covering loss of, or excessive breakage of College property, or other indebtedness to the College.

8. Nonresidents of North Carolina registered in Forestry or Textiles will pay an additional \$38.00 Tuition per quarter. Nonresident students registered in other curricula will pay an additional \$55.00 Tuition per quarter.

9. Expenses include also the following:

	Fall Quarter	Winter Quarter	Spring Quarter
Room Rent . . . . .	\$18.00 to \$30.00	\$18.00 to \$30.00	\$18.00 to \$30.00
Books and Supplies	20.00 to 35.00	8.00	
Drawing Equipment for those taking Drawing . . . . .	17.50 to 35.00		

10. College fees include those for registration, for hospital and medical attention, for library and lectures, for laboratories and classrooms, and for physical education.

11. Student-activities fees include those for student government, student publications, and general student activities.

12. Freshmen, unless living at home with their parents, are required to room in specified College dormitories.

13. Reservation of a room and the first payment of rent must be made before August 15 to obtain the most desirable room available. A reservation may be canceled and the payment therefore refunded upon notice before September 1, not later. Information about rooms may be had by writing Superintendent of Dormitories.

14. Dormitory rooms have necessary furniture, but each student must bring his own blankets, bed linen, and towels.

15. Board at the College Cafeteria may be paid in cash for each meal, or in tickets sold at the Cafeteria in books of \$5.00 value for the convenience of students.

16. Applicants who desire information regarding part-time employment should address their inquiries to the Self-Help Secretary. The Self-Help Secretary will, upon request, write of possible employment to those wishing to earn, while in College, money to help in paying expenses.

17. A refund of the amount paid the College, less the registration fee and a reasonable charge for lodging and services, is made to a student withdrawing within ten days from the date of registration; on withdrawal later, no refund will be made except of the general deposit.

### Graduate and Special Students

For graduate students and for special students taking fewer than twelve credit hours the fees are:

- (1) Registration fee, \$2.00 per term.

- (2) For each credit hour per term, \$3.00, not including student-activities or athletic fees, which are optional.

### III. Registration

1. A program of exercises during the first week is given each applicant for admission to the freshman class on his arrival upon the Campus.

2. The Certificate of Admission approved beforehand by the Registrar for the School and the Department in which the applicant wishes to register must be ready for presentation.

3. The dates indicated in the College Calendar for the registration of freshmen, of those applying for advanced credit, and of sophomores, juniors, seniors, and graduate students, must be strictly observed.

4. For registration after the scheduled date, an extra fee of \$2 is required for the first day and \$1 for each additional day until a maximum of \$10 is reached.

5. Directions in detail for registration are furnished each student on entering the registration room—the Gymnasium.

6. Vaccination against smallpox is required at the time of registration unless the applicant furnishes a doctor's certificate indicating he has been successfully vaccinated within two years preceding his registration.

7. Inoculation against typhoid fever, though not compulsory, is urgently suggested for those entering the College. Free inoculation is offered by the College to all students.

8. All new students will be given the Tuberculin Skin Test unless they present a statement from their family physician indicating that such a test has been taken during the past year.

9. Admission to classes is permitted only after complete registration certified on the official card of the Registrar. All instructors will enforce this rule.

### IV. Financial Aids and Scholarships

1. The Self-Help Secretary of the College Y. M. C. A. (see page ?) will assist those desiring employment to help pay expenses.

2. A Student Loan Fund, first established by the State College Alumni Association, amounting now to \$34,000, renders assistance to needy students of talent and high character. The Fund includes the Finley Loan Fund of \$1,000 (see below), the Masonic Loan Fund, \$4,500, the Frank M. Harper Loan Fund, \$200, and the Escheats Loan Fund of \$15,000.

At present, loans, restricted largely to juniors and seniors, are made at 6 percent on good security. Since the fund is comparatively small, new loans are usually made only as old ones are repaid.

The Finley Loan Fund is a memorial to William Wilson Finley by the Southern Railway Company, of which Mr. Finley was, at the time of his death, president. It is designated for needy students in Agriculture.

3. The John Gray Blount Scholarships were endowed by Colonel W. B. Rodman, of Norfolk, Virginia, in memory of his great-grandfather. The maximum value of each of the two scholarships is \$195.

4. The Champion Paper and Fibre Company provides a fund for a Fellowship to encourage graduate study and research in Chemical Engineering.

5. The Syd Alexander Scholarship was endowed by Mrs. Mary R. Alexander of Charlotte, North Carolina, in memory of her husband, the late Sydenham B. Alexander, alumnus and trustee of State College. The returns from the endowment—\$5,000—are awarded to a student native and resident of Mecklenburg County, North Carolina, who is pursuing a course in the School of Textiles of State College.

6. The Barrett Company, Distributors of Arcadian American Nitrate of Soda, offers to 4-H Club members the following one-year scholarships:

- (1) To the member with the most distinguished record with a Corn-Club project.
- (2) To the member with the most distinguished record in Cotton-Club work.
- (3) To the member with the best Tobacco-Club record.
- (4) To the member with the best record in Horticulture.

7. The North Carolina Cottonseed-Crushers Association offers to 4-H Club members the following one-year scholarships:

- (1) To the member making the best record in the Baby-Beef contest.
- (2) To the member making the best record in a dairy project.
- (3) To the member making the best Pig-Club record.

8. (1) The Chilean Nitrate Educational Bureau offers a four-year scholarship to the 4-H Club member in North Carolina making the best record for three or more years in 4-H Club work.

(2) The Chilean Nitrate Educational Bureau also offers a hundred scholarships of \$5 each: one to the most distinguished Club boy from each of the hundred counties of North Carolina attending the 4-H Summer Short Course at State College.

9. The Pieters Memorial Graduate Scholarship commemorates the life and work of Dr. Adrian J. Pieters, long a leader in agriculture and a pioneer in the development of lespedeza. It was initiated by his wife, Mary Burr Pieters, to carry forward through graduate study his work with lespedeza and other acid-tolerant legumes. The annual stipend is \$200.

10. Graduate Fellowships are offered each year by State College, during the current year, thirty-three teaching, twenty-four research fellowships. As the number of these scholarships is limited, application should be made early to the Head of the Department concerned.

11. As need arises, assistants in various Departments are selected from upperclass or graduate students.

## STUDENT ACTIVITIES

### Student Government

Student Government, in accordance with an agreement between the students and the Board of Trustees of the College, undertakes "to handle all matters of student conduct, honor, and general student interest, and to promote in Campus life self-control, personal responsibility, and loyalty to the College and the student body."

The Student Council, the legislative-executive body for Student Government, is composed of one senior, one junior, and one sophomore from each of the Schools—Agriculture and Forestry, Engineering, and Textile, and the Division of Teacher Education—and one member chosen at large from the freshman class at the beginning of the second term.

For guidance in its operation, the Constitution and By-Laws for Student Government has been adopted.

### Student Assembly

As an experiment and as a supplement to the Student Council, there has been initiated at North Carolina State College a legislative branch of the Student Government. This Student Assembly was originated in January 1940 for the purpose of widening the scope of Student Government by giving better representation in the determining of campus policies.

The Assembly is modeled after our own State Legislature, with a Senate and a House of Representatives. The Senate is composed of the Student Council and the Student Welfare Committee. The House of Representatives is composed of one representative from each social fraternity and from one to two men from each floor of all dormitories. The total number of students in the Assembly is nearly one hundred and fifty. Meetings are held monthly, usually in the State Capitol.

### Student Publications

The Publications Board is composed of the editors and business managers of all student publications, the president and the past president of the junior class, the president of the Student Council, and five faculty members. The Board seeks to promote the interests of the College and of the publications, to insure coöperation among the publications, and to hold the loyal support of the faculty, the students, and the public.

The Technician, the student newspaper, is delivered to each student's mail box every Friday morning of the regular College session. The charge for the paper is included in the student's publications fee.

The Agromeck is the official annual published at the end of each scholastic year of the College. A copy of The Agromeck is also paid for by each student in his publications fee.

The Wataugan, issued twice each term, is "strictly a humorous magazine." The student's publications fee covers the cost of it.

The *Agriculturist*, a monthly magazine in its field, was begun by the activities of the Alpha Zeta fraternity and the "Ag" Club. All students of the School of Agriculture and Forestry are concerned in this enterprise.

The *Southern Engineer*, the organ of the School of Engineering, is managed by the Board of Directors of the Southern Engineer. They plan to issue four numbers during the regular College session.

*Pi-ne-tum* is the annual of the Division of Forestry. Its contents constitute a record of persons, especially the graduating class, and of events of the year interesting to students of the Division and their friends.

The Textile Forum is published quarterly by the students in the Textile School.

### Clubs and Societies

All clubs and societies endeavor to bring together students (some clubs include members of the faculty), with the same interests or professional objective, in order to cultivate close personal relations and fellowship. Their chief purpose is to inculcate high professional consciousness and *esprit de corps*; and, with a view toward the accomplishment of these ends, they afford to members an opportunity to hear and to participate in discussions of professional problems, and themselves to present papers on current technical topics.

The Agricultural Club, besides the usual activities, sponsors the Agricultural Fair and an annual dance.

The Forestry Club, having the usual program through the year, publishes its own annual, *Pi-ne-tum* (described under "Student Publications," above).

La Société des Beaux Arts includes students in Architectural Engineering and those in Landscape Architecture.

The Agricultural Engineering Club is a student branch of the national organization, The American Society of Agricultural Engineers, and brings together students of this department to discuss all phases of their specialty.

The Agricultural Education Society devotes its attention to matters of interest to students who are preparing to become teachers of agriculture.

Student Chapters in Engineering at State College represent the following national organizations:

The American Ceramic Society

The American Institute of Chemical Engineers

The American Institute of Electrical Engineers

The American Society of Civil Engineers

The American Society of Mechanical Engineers

The Associated General Contractors of America

The Institute of Aeronautical Sciences

The National Society for the Advancement of Management

Theta Tau, National Professional Engineering Fraternity, Rho Chapter, at State College, has a membership exceeding two hundred.

The Engineers' Council, composed of three students and a professor from each Department of the School of Engineering, publishes quarterly *The Southern Engineer* and sponsors the Engineers' Fair and Exposition.

The Tompkins Textile Society endeavors to keep abreast of whatever affects the textile industry, state, national, or foreign. For this society, the most important event of the year is the Textile Institute and Style Show.

The International Relations Club, including faculty and student members, seeks to arouse intelligent and active interest in national and foreign affairs.

The Monogram Club has as its purpose to develop the highest order of sportsmanship in all athletics.

State College Life-Saving Corps, affiliated with the Red Cross, is interested in ways to accomplish the worthy ends indicated by its name.

### Honor Fraternities and Societies

Honor Fraternities and Societies strive to encourage and reward high attainment in scholarship and character, and to instill lofty professional ideals, with leadership in contribution to existing knowledge and in service as prime objectives. The following national fraternities and societies have chapters or other organizations at State College:

- Alpha Zeta: Agricultural
- Eta Kappa Nu: Electrical Engineering
- Gamma Sigma Epsilon: Chemical
- Kappa Phi Kappa: Teaching
- Keramos: Ceramic Engineering
- Lambda Gamma Delta: Agricultural Judging
- Mu Beta Psi: Musical
- Phi Eta Sigma: Freshman, Scholarship
- Phi Kappa Phi: Scholarship: Character
- Phi Psi: Textile
- Pi Kappa Delta: Public Speaking
- Sigma Pi Alpha: Language
- Tau Beta Pi: Engineering
- Upsilon Sigma Alpha: Army
- Blue Key: Scholarship, Leadership, Student Activities
- Scabbard and Blade: Military: Reserve Officers Training Corps
- Xi Sigma Pi: Forestry, Honorary.

The following are organizations peculiar to State College:

- The Golden Chain: Senior Citizenship
- The Order of St. Patrick: Senior Engineering; Collegiate and Personal Distinction
- The Order of 20 and 3: Sophomore Leadership
- The Pine Burr Society: Scholarship and Extracurricular Activity
- Sigma Tau Sigma: Textile Scholarship



### Social Fraternities

Following are the national and local Greek-Letter Fraternities having chapters at State College. Each chapter occupies a chapter house in the vicinity of the campus.

Alpha Gamma Rho  
Alpha Kappa Pi  
Alpha Lambda Tau  
Delta Sigma Phi  
Kappa Alpha  
Kappa Sigma  
Lambda Chi Alpha

Phi Kappa Tau  
Pi Kappa Alpha  
Pi Kappa Phi  
Sigma Alpha Mu  
Sigma Nu  
Sigma Phi Epsilon  
Sigma Pi  
Chi Sigma (Local)

The Interfraternity Council, composed of two representatives from each chapter, has as its purposes to advance the interests of North Carolina State College; to promote the general interests and welfare of the associated fraternities as a body; and to insure coöperation between them in their relations with the faculty, the student body, and the public in general.

### MEDALS AND PRIZES

1. The Alpha Zeta Cup is awarded to the sophomore in Agriculture who during his freshman year made the highest scholastic average.

2. The General Alumni Association of the College presents annually a trophy to the member of the graduating class who during his College course has most distinguished himself in athletics.

3. The American Institute of Chemical Engineers presents annually its award to the sophomore who during his freshman year made the highest scholastic record.

4. The Associated General Contractors of America Prize is awarded each year by the Carolina Branch of this organization to the member of the graduating class in Construction Engineering who during his sophomore, junior, and senior years has made the highest scholastic record.

5. The Elder P. D. Gold Citizenship Medal, founded by the late C. W. Gold in memory of his father, and continued by his son, C. W. Gold, Jr., of Greensboro, North Carolina, is awarded annually to the member of the graduating class who during his sophomore, junior, and senior years has most distinguished himself in Student Citizenship. The qualities determining the award—scholarship, student leadership, athletics, and public speaking—are to be attested by the College Registrar, the Student Council, the Faculty Athletic Committee, and a committee composed of the Dean of Administration and Dean of Students.

6. The Moland-Drysdale Corporation Scholarship Cup, presented by Mr. George N. Moland, of Hendersonville, North Carolina, President of the Corporation, is awarded annually to the freshman in Ceramic Engineering who, during the two terms preceding Scholarship Day, has the highest scholastic record together with interest shown in the activities of the Department.

7. The J. C. Steele Scholarship Cup, presented by J. C. Steele and Sons, of Statesville, North Carolina, to commemorate the establishment by Mr. Steele of the first plant for the manufacture in the South of ceramic machinery, is awarded annually to the student of the three upper classes in the Department of Ceramic Engineering who has made during the three terms preceding Scholarship Day the highest scholastic record. In making the award, personality and interest in the activities of the Department are considered.

8. The Sigma Tau Sigma Cup is awarded annually to the senior in Textiles who has the highest scholastic record.

9. The Textile Colorist Medal is awarded annually to the senior who presents the best thesis on some subject in Textile Chemistry and Dyeing.

10. The National Association of Textile Manufacturers Medal is awarded annually to a senior in the State College Textile School. The award is based upon conditions outlined by the National Association.

11. Phi Kappa Phi, Honor Scholarship Society, awards each year a gold medal to the senior who as a junior, a silver medal to the junior who as a sophomore, and a bronze medal to the sophomore who as a freshman, made respectively, the highest scholastic record.

## PHYSICAL EDUCATION AND ATHLETICS

Professor J. F. Miller, Head

Assistant Professor C. G. Doak, Physical Education and Intramurals.

Assistant Professor T. I. Hines, Physical Education and Swimming Coach.

J. L. VonGlahn, Business Manager Athletics.

John Fox, Director Athletic Publicity.

Williams Newton, Head Coach Football and Baseball.

Herman Hickman, Assistant Coach Football and Head Coach of Wrestling and Track.

W. P. Dickens, Instructor, Physical Education and Assistant Football Coach.

Sgt. James R. Sloo, Custodian of Gymnasium and Athletic Equipment.

Aims.—In general, the Department aims are: (a) to promote a higher standard of physical fitness through "big muscle" activities; (b) to develop habits, knowledge, appreciation, and skills in desirable sports, and athletic and gymnastic procedures; (c) to develop habits of safe recreative activities to continue after graduation.

Organization.—The Department of Physical Education and Athletics is in the Basic Division of the College. The program of service has three sections: Physical Education, offered in various curricula, for which college credit is given; Intramural Activities, for every interested student in the College; Intercollegiate Athletics, representative of the College.

Control.—All activities of the Department are controlled by the College. Physical Education and Intramural Activities are under the supervision of the Dean of the Basic Division. Intercollegiate Athletic Activities are under the supervision of the Athletic Council. The Head of the Department seeks

balance and coordination in the work of the three sections. He delegates the work of the staff and sees that policies of the Department are carried out by them. To the Business Manager of Athletics is delegated the responsibility for business, financial, and all other details connected with intercollegiate contests. The members of the staff are expected to give reasonable and capable assistance in any work of the Department insofar as it does not interfere with their main specialization. They are responsible to the Head of the Department for carrying out their duties.

**Buildings and Fields.**—The Department of Physical Education and Athletics is quartered in the Frank Thompson Gymnasium. An attractive feature of the gymnasium is a white-tiled swimming pool and natatorium, with modern filter and chlorinating systems. The new Field House, located at the south end of Riddick Stadium, is the headquarters of the football squad. Offices of the football coaching staff are located in this building. Riddick Stadium, with new concrete bleachers, seats 15,000 spectators. Freshman Field, adjacent to the Gymnasium, is used for freshman football, intramural games, physical-training classes, and varsity baseball. The new quarter-mile track, with its 220-yard straightaways is located south of the Freshman Field. It has concrete stands seating about 3,000 spectators. "Red Diamond" and "1911 Parade Field" are available for intramural contests. The College has ten excellent clay tennis courts, with some additional contemplated.

**Activities.**—The College requires all students to enroll in some type of physical activity for two years, or six full terms. The classes meet twice a week, one term credit being given for each term's work. All students are required to take a physical and a medical examination at registration. Those who are subnormal in any way are placed on the recall list. Students may receive free medical advice at any time. All freshmen are required to take the course in Health Education which meets once a week for one term. Instruction in personal hygiene is given by members of the Physical Education Staff. A swimming requirement is also made for all freshmen, which must be met before graduation.

The required physical training courses are so standardized that they are presented, instruction given, and examination required of each student on the same basis as all other college courses. Students having physical defects which would interfere with their meeting the regular class requirements are placed in a restricted group activity. In general, the physical training activities fall in one of the three groups: (a) those developing individual physical efficiency, (b) those affording combative contests, (c) those occupying recreative or leisure time. Work for the most part is prescribed for freshmen; election of activities is permitted sophomores.

**Intercollegiate Athletics.**—North Carolina State College is a member of the Southern Conference, and subscribes to its rules of eligibility for all intercollegiate contests. The program consists of the organization and training of representative varsity and freshman teams in the following sports: football, basketball, baseball, track, cross-country, wrestling, boxing, swimming, tennis, golf, and rifle competition.

**Intramural Athletics.**—Activities are fostered and promoted in many lines of athletic sports for the student body. Meets, tournaments, and leagues are seasonably organized in twelve separate sports. Participation in these activities is purely voluntary; it does not receive College credit. Sports used in this program are correlated with those used in the required class work in Physical Education. Instruction in the sports is given in the class work, and opportunity for competition is provided in the intramural program. Cups, shields, and trophies are awarded winners in these competitions.

## MUSIC

Christian D. Kutschinski, Director

Students with previous musical experience are encouraged to continue their musical activities in campus musical organizations for which they can qualify. Qualified musicians may enroll in the R.O.T.C. Band for their required military drill.

The 80-piece R. O. T. C. Band and 50-piece Drum-and-Bugle Corps furnish martial music for all military parades by the R. O. T. C. Regiment. Their R. O. T. C. drill periods are devoted to both military and musical instruction.

The 90-piece Red-Coat Band plays and marches at football games, and at other campus and civic affairs. Its membership comprises select R. O. T. C. and non-R. O. T. C. bandsmen, who rehearse three hours a week independently of the R. O. T. C. Band.

At the conclusion of the football season the personnel is reduced to a 72-piece symphonic or concert band.

The band is also subdivided into smaller units which alternate in furnishing music at pep meetings, basketball games, and on other such occasions.

The Concert Band, composed of 72 of the most proficient musicians on the campus, concentrates on the study and performance of the finest in concert music. Its activities have greatly increased the cultural growth of those participating, and have done much toward increasing appreciation of music on the campus and in the community, in addition to providing wholesome entertainment.

The Drum-and-Bugle Corps, besides functioning as a separate unit, is also combined with the band on certain occasions, giving State College a marching musical unit of 140 men, in red-and-white uniforms, acquired by contributions from students and faculty, and from interested citizens of Raleigh through the efforts of The American Legion and the Junior Chamber of Commerce.

**Credit.**—Juniors and seniors in the band who are not enrolled in the R. O. T. C. may obtain three term credits per year for Band when approved by the Director before registration.

The Concert Orchestra is augmented by a number of the best musicians in Raleigh to round out a symphonic instrumentation. Besides preparing concert programs, the orchestra is divided into smaller units to provide music of a lighter nature for numerous College functions.

*The Men's Glee Club* rehearses three times a week, and alternates with the orchestra and bands in giving concerts throughout the year. It has proved to be a very popular extracurricular activity, and the group is in demand for concerts out of town and at civic functions in addition to those on the campus.

A Male Quartet and small Chamber Music ensembles are encouraged.

## COLLEGE PUBLICATIONS

State College Record carries results of research and special studies by members of the faculty and, in the April issue, the annual Catalog with announcements for the following year.

Agricultural Experiment Station publishes many bulletins of research conducted by the staff. These are sent on request, free to anyone in the State.

Agricultural Extension Service issues circulars of practically useful information on various home and farm problems. A list of those available or any circular available is sent on request, free to citizens of the State.

The College publishes the results of experimental and research projects made by the Engineering Experiment Station and Engineering Departments of State College. Information concerning these publications may be obtained from the Director of the Engineering Experiment Station.

## HEALTH OF STUDENTS

The authorities of the College strive to protect the health of students in every way. Each student is given a thorough physical examination when he enters the College. If remedial defects are discovered, such as defective tonsils or eyes, he is advised to have these defects corrected. If the defect is such that it may be corrected by exercise, the student is placed in a special class under the supervision of the Director in the Physical Education Department of the College.

The Infirmary, maintained by the College, has accommodations for thirty-five bed patients. There is a staff of five: the College Physician, a Supervising Nurse, an Assistant Nurse, a Night Nurse—all graduates of Class-A Hospitals—and a Laboratory and Registered X-Ray Technician.

A modernly equipped First-Aid Department, and a Laboratory and X-Ray Department are valuable features of the Infirmary.

The College Physician visits the Infirmary regularly once daily and more often when necessary. The Infirmary is never closed. A graduate nurse is on duty day and night. Students have free access to the Infirmary at all times.

Parents or guardians will be notified immediately by the Dean of Students in case of accident or serious illness of their sons, and no surgical operation will be performed, except in cases of extreme emergency, without full consent of parents.

The medical fee provides for students' infirmary service, general medical treatment, and the services of nurses. It does not provide for surgical operations, outside hospital care, or the services of dentists or any other specialist.

### THE GENERAL ALUMNI ASSOCIATION

**Alumni Organization.**—The purpose of this organization is to promote the interests of State College and to foster among its former students a sentiment of regard for one another, an attachment to their Alma Mater, and the ideals of service to their fellow men; to interest prospective college students in the kind of training given at State College and in the advantages which young men who are graduates of schools of science and technology have in the fields of useful employment.

The annual business meeting of the General Alumni Association is held during the Commencement each year. Officers of the General Alumni Association, members of the Alumni Executive Committee, members of the Alumni Loyalty Fund Council, and alumni representatives on the Athletic Council are elected at the annual meeting.

Class reunions are held each year in connection with the annual meeting of the Association. These reunions are scheduled so that each class has a reunion the first year, and subsequently, every five years after graduation.

**State College Clubs.**—Local Clubs of the General Alumni Association will be organized wherever there is sufficient interest to justify a club.

**The Alumni Office.**—Records of both graduates and nongraduates are kept by the Alumni Office. The master file includes information on all former students; other files are arranged geographically and by classes. Biographical files are also kept on all graduates.

Serving as a medium of communication between alumni and the College, the Alumni Offices, located on the second floor of Holladay Hall, are official headquarters for alumni when they visit the campus.

**The State College News.**—THE STATE COLLEGE NEWS is published monthly except July, August, and September, by the General Alumni Association. The purpose of this publication is to keep alumni in touch with the College and with each other. The magazine is edited by the Alumni Secretary.

### THE D. H. HILL LIBRARY

Harlan Craig Brown, Librarian, on military leave of absence.

A.B., B.S. in L.S., University of Minnesota; A.M. in L.S., University of Michigan.

Mrs. Reba Davis Clevenger, Acting Librarian.

B.L.S., University of Illinois.

Miss Christine Coffey, Circulation Librarian.

A.B., University of North Carolina; A.B. in L.S., University of Michigan.

Mrs. Grace Sims Dalton, Librarian in charge of the Architectural Department Library.

B.S., Memphis State College; B.S. in L.S., Peabody College.  
Cloyd Dake Gull. On military leave of absence.

A.B., Alleghany College; A.B., A.M. in L.S., University of Michigan.  
Robert Mitchell Lightfoot, Jr. On military leave of absence.

B.S., N. C. State College; M.S., University of Virginia; B.S. in L.S., Syracuse University.

Miss Foy Lineberry, Catalog Librarian.

A.B., Meredith College; B.S. in L.S., University of North Carolina.

Mrs. Mary Faucette Poole, Reference Librarian.

B.A., Duke University; B.S. in L.S., University of North Carolina.

Miss Emma Mae Robinson, Assistant in Circulation Department.

Miss Anne Leach Turner, Order Librarian.

A.B., University of North Carolina;

B.S. in L.S., Columbia University.

Miss Anna Elizabeth Valentine, Periodicals Librarian.

B.S., N. C. State College; A.B. in L.S., University of North Carolina.

**Beginning.**—The library dates from December, 1889, when \$500 was appropriated for the purchase of books as the nucleus of a library. From 1889 to 1903, the library was housed on the second floor of the Administration Building. Upon the completion of Pullen Hall, larger quarters on the first floor of that building were occupied. The library remained in Pullen Hall until 1926, when it was moved into its present building.

**Technical, First.**—Realizing that experience in the use of books is an essential part of the training of agriculturist, engineer, industrialist, and scientist, the College is striving to build strong, well-balanced collections in the degree-giving Departments, supported by adequate material in supplementary fields. To this end, the library is planned primarily to supply the study and research needs of the students and staff of the College. Its facilities, however, are available to all residents of the State for use within the library building. Technical materials not available from the North Carolina Library Commission may be obtained from the State College Library through the agency of the Library Commission or through inter-library loan channels.

**Inclusive.**—The library collection includes all books and periodicals belonging to the College. The total number of cataloged volumes is approximately 65,000, exclusive of a large number of publications of the Federal Government, the State Agricultural Experiment Stations, the State Extension Divisions, the Engineering Experiment Station, and the agricultural departments of many foreign countries. More than 800 periodicals and newspapers are received currently.

**Facilities.**—The library contains two reading rooms with a minimum seating capacity of 164. The larger room is used for study. It contains a collection of encyclopedias, dictionaries, standard reference books in the different fields of study, and the current issues of periodicals and newspapers. The Reference Desk, where general and technical reference questions

are answered, is conveniently located here. The smaller room, with a seating capacity of about twenty, is used for recreational reading. It is comfortably furnished and has a collection of the best fiction and non-fiction of general interest.

**Instruction.**—Through use of the Freshman English classes, elementary instruction in the use of the library is given during the fall quarter to all new students. This instruction includes lectures, and problems in the use of the card catalog, magazine indexes, and reference books.

### ARCHITECTURAL DEPARTMENT LIBRARY

A small Architectural Department Library, under the direction of a librarian, is located in Daniels Hall. The nucleus of this collection is a gift from Professor Ross E. Shumaker.

### YOUNG MEN'S CHRISTIAN ASSOCIATION

#### Board of Directors

M. E. GARDNER, *Chairman*

E. L. Cloyd

David A. Worth

L. L. Vaughan

John A. Park

Walton R. Thompson, *Ex-Officio*

F. B. Wheeler

A. D. Stuart

B. F. Brown

Thorne M. Reynolds, *Ex-Officio*

#### Employed Staff

EDWARD S. KING, *General Secretary*

C. D. UMBERGER, *Assistant Secretary*

MRS. L. W. BISHOP, *Office Secretary*

#### Student Organization

##### The Student Cabinet

The cabinet is composed of the four officers of the association, President, Vice-President, Secretary, and Treasurer and the chairmen of all standing committees. The officers are elected annually by ballot. The committee chairmen are appointed by the President. The cabinet is in charge of the program of the association. The President and Treasurer are *ex-officio* members of the Board of Directors.

The objective of the Young Men's Christian Association is to help contribute whatever is lacking in the total educational situation to make the principles and the spirit of the Christian religion effective in personal life and in all social relations.

The Y. M. C. A. Building is the social and religious center of the campus. On the basement floor are a recreation room, a guest room, a barber shop,



and the Student Supply Store. There is a spacious lobby, an auditorium, a reception room, a dining room, the self-help office, and the service office on the first floor. The second floor provides space for the Faculty Club, a Conference Room, a committee room, the Y. M. C. A. Cabinet Room, and the office of the General Secretary.

The student-employment service is directed by the Assistant Secretary of the Association. Approximately five hundred and fifty students obtain part-time work through the Y. M. C. A. in the course of a year.

Student and faculty organizations of all kinds use the facilities of the building for meetings and social gatherings, entertainments and lectures.

The Y. M. C. A. program, directed by the Student Cabinet, includes, with other features not mentioned, work for new students; organizing a Freshman Cabinet; planning socials with the students from nearby women's colleges; bringing to the campus eminent men to speak on such topics as men-and-women relations, and present-day international, racial, and economic questions; conducting an annual religious-emphasis week under the leadership of Christian ministers or laymen who understand student life; sending delegates to State, regional, and National Christian Student Conferences; issuing annually *State College Handbook*, a compendium of extracurricular activities on the Campus, specially those of students, with the personnel of each organization for the year.

## MILITARY TRAINING

### The Military Department: The Reserve Officers Training Corps

The Reserve Officers Training Corps, the official designation of the military organization at State College, conducts the work in two courses of two years each:

**The Infantry Basic Course.**—A required course for all physically fit freshmen and sophomores.

**The Signal Corps Basic Course.**—A required course for all physically fit freshmen and sophomores in the School of Electrical Engineering.

**The Advanced Course.**—Elective and selective for juniors and seniors who have successfully completed the Basic Course in Infantry and/or the Signal Corps. Satisfactory completion of the Advanced Course and attendance of Officers Candidate School leads to a commission as a Second Lieutenant of Infantry or Signal Corps in the Officers Reserve Corps.

For detailed description of courses, see the courses listed under Military Science and Tactics.

**Drill.**—All ROTC students are required to attend three one-hour drill periods per week.

### Uniforms and Equipment

**Army Officers.**—The Federal Government details officers of the Army as Instructors in the R. O. T. C. The senior instructor is designated by the War Department as Professor of Military Science and Tactics. Regular

Army and/or Reserve officers conduct all classroom instruction and supervise the instruction of the corps on the drill fields.

**Uniforms.**—Uniforms for Basic Course students, and all instructional equipment are provided by the Federal Government. These are loaned to the Institution, which is accountable to the Federal Government for their proper care and use.

**Financial Aid.**—Members of the Advanced Course are paid a specific amount by the Federal Government. Each member is required to purchase necessary uniforms, textbooks, military shoes, and other pertinent items. Payment for these items should be made in advance at the Treasurer's Office and credited to Military Stores. If credit is desired, a charge of 20% must be made to meet carrying charges and forfeitures of dealers' discounts.

The uniforms are made in the pattern of the Army Officers' uniform and can be used by the student for several years after he has received his commission in the Reserve Corps. In addition, the Advanced Course student receives from the Federal Government a daily pay amounting to approximately twenty-five cents per day. An Advanced Course student who withdraws from College prior to graduation must adjust his uniform account with the Military Department prior to departure from the Campus.

**Organization.**—The R.O.T.C. at State College is organized into the following units:

The First Infantry Regiment of three battalions, and First Battalion, Second Regiment, Signal Corps.

A **Military Band**, supervised by Military Staff and trained by the Director of Music of the College. Instruments are provided by the Federal Government. Membership is open to all student musicians who can qualify. Time is given for instruction in concert music in addition to military-band music.

A **Military Drum-and-Bugle Corps** is trained by cadet officers. Instruments are provided by the Military Department.

**Credit.**—Credit is allowed for work at other institutions having an R. O. T. C. Unit established in accordance with the provisions of the National Defense Act and Army Regulations. Record of a student's prior training in R. O. T. C. is obtained by the Military Department from the institution concerned.

**Educational Value.**—The mission of the R. O. T. C. is to qualify the student as a leader whether in peace or in war, to help prepare him to discharge his duties as a citizen and to awaken him to an appreciation of the obligations of citizenship. Primarily, it is an agency for the production of Reserve Officers for those arms which are restricted as to their sources of production, and it should produce for those arms the number of Reserve Officers required in the initial periods of general mobilization.

Students who complete the course, according to their own abundant testimony, secure personal benefits which are valuable to them in their occupations. They are better citizens because they have had inculcated an under-

standing of the responsibilities of citizenship. They realize more fully that the benefits their own generation enjoys were secured by sacrifices made by their predecessors. They learn the necessity for discipline, the responsibility of an individual to the group as a whole, and the methods by which discipline is developed and enforced. Finally, they learn the principles of leadership and have an opportunity to exercise this art to a greater extent than that which is available to them in any other phase of their scholastic instruction.

### III. SCHOOLS, DIVISIONS AND DEPARTMENTS

#### THE BASIC DIVISION

Benjamin Franklin Brown, Dean

**Organization.**—Upon recommendation by President Graham, the Basic Division of the College was created by action of the Board of Trustees at its annual meeting on June 11, 1935. After considerable preliminary preparation, the organization of the Division became effective July 1, 1937, the first students being registered in the Division in September, 1938. For the first year it seemed advisable to include only the incoming freshmen. Beginning with the College year 1939-40, all freshmen and sophomores in the College are registered in the Basic Division.

Within its administration, the Basic Division includes the Departments of Economics, English, Ethics and Religion, History and Political Science, Modern Languages, Physical Education, and Sociology. The Heads of the Departments, or representatives from them, constituting the Administrative Board of the Division, together with the members of the several Departments are as follows:

#### Economics

Professor C. B. Shulenberger, Administrative Board Representative

Professors B. F. Brown, R. O. Moen, M. C. Leager; Associate Professors R. W. Green, T. W. Wood; Instructors †L. J. Arrington, R. L. McMillan

#### English

\* Professor Lodwick C. Hartley, Head of the Department

Professor Roger P. Marshall, Acting Head of the Department

Professors J. D. Clark, T. P. Harrison, A. I. Ladu; Associate Professors A. M. Fountain, E. H. Paget; Assistant Professors H. G. Kincheloe, \*\* F. H. Lyell, A. B. R. Shelley, T. L. Wilson, W. K. Wynn; Instructors Mrs. Ruth C. Allen, K. W. Cameron, Mrs. J. W. Cell, Philip H. Davis, J. C. Drake, H. T. Gibson, Franklin Irwin, \*\* A. N. Kruger, J. P. Nickell, Allyn P. Robinson, \*\* J. A. Shackford, J. R. Timmerman, \*\* R. B. Wynne.

#### Ethics and Religion

Professor W. N. Hicks, Head of the Department

#### History and Political Science

Associate Professor James W. Patton, Acting Head of the Department

Associate Professor, L. W. Barnhardt

Assistant Professors George Bauerlein, Jr., L. Walter Seegers

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† On leave.

\* On leave with United States Navy.

\*\* On leave with United States Army.

**Modern Languages**

Professor L. E. Hinkle, Head of the Department

Associate Professor S. T. Ballenger; Instructors †I. O. Garodnick,  
Mrs. Ruth B. Hall

**Physical Education and Athletics**

Professor J. F. Miller, Head of the Department

For names of Physical Education staff and athletic coaches see page 34.

**Sociology**

Professor Sanford R. Winston, Head of the Department

**The Faculty of the Division**

The faculty is composed of the staff members of the Departments named above and, in addition, the teachers of freshmen and sophomores from the Departments of Botany, Chemistry, Geology, Mathematics, Physics, Psychology, and Zoölogy.

**Purposes.**—Broadly speaking, the purposes of the Basic Division are (a) to provide the best possible preliminary training during the first two years of the student's college career so that he can during the last two years successfully pursue his professional education in agriculture and forestry, engineering, textiles, or vocational education; and (b) to provide effective guidance during the first two years, so that those students with well-chosen and fixed purposes can be well-advised in their educational careers, and also so that those students who have made an unsatisfactory choice of curriculum or who have become uncertain of their careers, may receive helpful guidance and advice in finding themselves.

More specifically it is the function of the Basic Division:

First, to provide "two years of basic courses in the humanities, natural and exact sciences, and the social sciences as the foundation of the schools of agriculture and forestry, textiles, and engineering;"<sup>1</sup>

Second, "to provide in the curricula of the upper years of each technological school for a minimum of the more general cultural courses in the humanities, natural sciences, and social sciences."<sup>2</sup>

**Student Guidance.**—In carrying out its guidance program, the Basic Division avails itself of numerous tests which indicate the past achievements and the present rate of progress of its students. Upon entering, all freshmen take the placement tests in Mathematics and in English, and the psychological examination. In addition to these, the advisers have the use of mid-term reports on all students, the final examination record, the dormitory reports, and the record from the Dean of Students.

Each student is assigned to a technical adviser in the curriculum in which he is registered, to assist him in planning for his professional career. Stu-

<sup>1</sup> President Graham's Report to the Board of Trustees, June 11, 1935, page 11.

<sup>2</sup> Ibid.

† On leave.

dents whose records indicate that they are not qualified for the curriculum they have chosen, or who become dissatisfied with their course, are assigned to guidance counselors for special assistance.

**Promotion.**—A student is promoted from the Basic Division upon earning with an average grade of at least C not fewer than 105 credits, including all of the work prescribed in his freshman year.

Those promoted may procure Certificates of Promotion upon application to the Dean of the Basic Division.

**Student Loads.**—It is the policy of the Basic Division and the purpose of its scholarship rules to encourage students to take such a number of credit hours each term as they can carry well, depending upon previous preparation, ability, self-help duties, health, etc. With few exceptions, each student starts the first term of his first year with a normal average load; those who do exceptionally well are encouraged to make as good progress as possible by adding hours up to their capacity, while those whose records indicate lack of ability from any cause are urged to reduce their loads to a point where they can do work of a creditable quality. Judgment as to the load that a student should take in any term is based upon previous demonstration of scholarship.

**Special Testing Service** is provided by the Department of Psychology in order to assist advisers and counselors in the guidance of students. In addition to the tests given to all freshmen already referred to, provisions are made for testing individual students who present special problems for study. The "testing service" rendered by the staff in Psychology administers tests for aptitudes, personality, interests, and educational achievement. Efforts are being made to provide a clinical approach to a study of the educational, vocational, and personality problems of individual students.

### PROGRAMS OF STUDY

**Programs of Study.**—The Basic Division grants no degrees. It provides two years of fundamental training in preparation for the special training of the last two years in the other divisions of the College:

The School of Agriculture and Forestry  
The School of Engineering  
The Division of Teacher Education  
The Textile School

Its programs of study are as follows:

## AGRICULTURE AND FORESTRY

## Majors in:

Animal Production	Farm Marketing and	Pomology
Dairy Manufacturing	Farm Finance	Poultry Science
Entomology	Field Crops	Rural Sociology
Farm Business	Floriculture	Soils
Administration	Plant Pathology	Vegetable Gardening

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra and Trigonometry, Math. 111, 112 .....	0	4	4
Economic History, Hist. 101, 102, 103 .....	3	3	3
Gen. Zoology, Gen. Botany, Phys. Geology, Zool. 101, Bot. 102, Geol. 120	4	4	4
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Gen. Poultry, Anim. Nutrition, Gen. Horticulture, Poul. 201, A. H. 202, Hort. 203 .....	3	3	3
Prin. of Forestry, Farm Equipment, Gen. Field Crops, For. 111, Agr. Eng. 202, F. C. 202 .....	3	3	3
Gen. Botany, Econ. Zoology, Soils, Bot. 101, Zool. 102, Soils 201 .....	4	4	5
Physics for Ag. Students, Int. to Org. Chemistry, Animal or Plant Physiology, Phys. 115, Chem. 221, Zool. 202 or Bot. 221 .....	5	4	5
General and Agr. Economics, Econ. 201, 202, Agr. Econ. 202 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

## Major in Agricultural Chemistry

Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra and Trigonometry, Math. 111, 112 .....	0	4	4
Economic History, Hist. 101, 102, 103 .....	3	3	3
Gen. Zoology, Gen. Botany, Phys. Geology, Zool. 101, Bot. 102, Geol. 120	4	4	4
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Qualitative and Quantitative Analysis, Chem. 211, 212, 233 .....	4	4	4
Gen. Botany, Econ. Zoology, Animal or Plant Physiology, Bot. 101, Zool. 102, Zool. 202, or Bot. 221 .....	4	4	5
Soils, Bacteriology, Anim. Nutrition, Soils 201, Bot. 402, A. H. 202 .....	5	4	3
General and Agr. Economics, Econ. 201, 202, Agr. Econ. 202 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

## Major in Agricultural Engineering

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107	3	3	3
†Military Science I, Mil. 101, 102, 103	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103	1	1	1
Surveying, C. E. s200, 3 credits	Summer		
Business English, Public Speaking, Eng. 211, 231	3	0	3
Farm Equipment, Agr. Eng. 202	0	3	0
Calculus I, II, III, Math. 201, 202, 303	4	4	4
Economic History, Hist. 101, 102, 103	3	3	3
Physics for Engineers, Phys. 201, 202, 203	4	4	4
Gen. Zoology, Gen. Botany, Eng. Geology, Zool. 101, Bot. 102, Geol. 220	4	4	3
†Military Science II, Mil. 201, 202, 203	2	2	2
Sport Activities, P. E. 201, 202, 203	1	1	1

## Major in Forestry

Composition, Eng. 101, 102, 103	3	3	3
Algebra, Trigonometry, and Math. of Finance, Math. 111, 112, 113	4	4	4
Drawing, C. E. 101, 102, 103	1	1	1
General Botany, Systematic Botany, Bot. 101, 102, 203	4	4	3
General and Economic Zoology, Econ. Entomology, Zool. 101, 102, 213	4	4	4
Elementary Forestry, For. 101, 102, 103	1	1	1
†Military Science I, Mil. 101, 102, 103 or Human Rel., Soc. 101, 2, 3	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103	1	1	1
General Inorganic Chemistry, Chem. 101, 102, 103	4	4	4
Introduction to Economics, Land Economics, Econ. 205, Agr. Econ. 212	3	3	0
Introduction to Psychology, Psychol. 200	0	0	3
Plant Physiology, Physical Geology, Bot. 221, Geol. 120	5	4	0
Dendrology, Wood Technology, Bot. 211, For. 202, Bot. 213	3	3	3
Theoretical Surveying, C. E. 221, 222	0	3	3
Field Surveying, Topographical Drawing, C. E. 225, 224	0	1	1
Intro. Soc., Soc. 202	0	0	3
†Military Science II, Mil. 201, 202, 203, or World Hist., Hist. 104	2	2	2
Sport Activities, P. E. 201, 202, 203	1	1	1
Surveying and Mapping, Dendrology, Mensuration, Silviculture, C. E. s300, For. s214, s304, s204	Summer		

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.



## Major in Landscape Architecture

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103	3	3	3
Algebra, Trigonometry, Analytics, Math. 101, 102, 103	6	6	6
General Botany, Systematic Botany, Bot. 101, 102, 203	4	4	3
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107	3	3	3
Arboriculture, L. A. 101, 102, 103	1	1	1
Drawing, C. E. 101, 102, 103	1	1	1
†Military Science I, Mil. 101, 102, 103 or Human Rel., Soc. 101, 2, 3	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103	1	1	1
Business English, Public Speaking, Eng. 211, 231	3	0	3
Physical Geology, Plant Physiology, Geol. 120, Bot. 221	0	4	5
Introduction to Psychology, Introduction to Economics, Psych. 200, Econ. 205	3	3	0
Introduction to Architecture, Elements of Architecture, Arch. 201, 202, 203	3	3	3
Pencil Sketching, Arch. 100	3	0	0
Theory of Landscape Design, L. A. 212, 213	0	3	3
Theoretical Surveying, C. E. 221, 222	3	3	0
Field Surveying, C. E. 225, 227	1	0	1
Plant Materials; Woody Plants, L. A. 201, 202, 203	2	2	2
†Military Science II, Mil. 201, 202, 203, or World Hist., Hist. 104	2	2	2
Sport Activities, P. E. 201, 202, 203	1	1	1
Surveying, C. E. s310, 3 credits	Summer		

## Major in Wildlife Conservation and Management

Composition, Eng. 101, 102, 103	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103	4	4	4
Algebra and Trigonometry, Math. 111, 112	0	4	4
Economic History, Hist. 101, 102, 103	3	3	3
General and Economic Zoology, Phys. Geology, Zool. 101, 102, Geol. 120	4	4	4
Elementary Wildlife Management, Zool. 111	1	0	0
†Military Science I, Mil. 101, 102, 103	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103	1	1	1
Public Speaking, Eng. 231	3	0	0
Ornithology, Zool. 251, 252, 253	2	2	2
General Botany, Systematic Botany, Bot. 101, 102, 203	4	4	3
Principles of Forestry, General Field Crops, Introduction to Organic Chemistry, For. 111, F. C. 202, Chem. 221	3	3	4
Introduction to Economics, Land Economics, Econ. 205, Agr. Econ. 212	3	3	0
Physics for Agricultural Students, Phys. 115	0	0	5
Theoretical Surveying, C. E. 221, 222	3	3	0
Field Surveying, C. E. 225	1	0	0
Comparative Anatomy, Zool. 222, 223	0	4	4
†Military Science II, Mil. 201, 202, 203	2	2	2
Sport Activities, P. E. 201, 202, 203	1	1	1

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

## ENGINEERING

## Major in Aeronautical Engineering

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Surveying, C. E. s200, 3 credits .....	Summer		
*Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Mechanical Drawing, M. E. 211, 212, 213 .....	2	2	2
Shopwork, M. E. 121, 122, 123 .....	1	1	1
Metallurgy, Engineering Mechanics, M. E. 322, 323, E. M. 311 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

## Major in Architectural Engineering

Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Surveying, C. E. s200, 3 credits .....	Summer		
*Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Pencil Sketching, Arch. 100 .....	1	1	1
Elements of Architecture I, II, III, Arch. 201, 202, 203 .....	3	3	3
Shades and Shadows, Arch. 205 .....	2	0	0
Perspective Drawing, Arch. 206 .....	1	0	0
Engineering Mechanics, E. M. 311, 312 .....	0	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

\* Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

## Major in Architecture

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103 .....	3	3	3
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
French or Modern Language, M. L. 101, 102, 201 or equivalent .....	3	3	3
Pencil Sketching, Arch. 100 .....	1	1	1
World History, Hist. 104 .....	2	2	2
Architectura lor Mechanical Drawing, Arch. 107 or M. E. 105, 106 .....	3	3	0
Descriptive Geometry, M. E. 107 .....	0	0	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Surveying, C. E. s200, 3 credits .....	Summer		
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Background for Modern Thought or Elective .....	3	3	3
Physics for Engineers, Phys. 201, 202 .....	4	4	0
History of Sculpture, Arch. 325 .....	0	0	2
Working Drawings, Arch. 305 .....	0	0	0
Shades and Shadows, Arch. 205 .....	2	0	0
Perspective Drawing, Arch. 206 .....	1	0	0
Engineering Mechanics, E. M. 301, 302 .....	0	3	3
Elements of Architecture, Arch. 201, 202, 203 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

## Major in Ceramic Engineering

Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Surveying, C. E. s200, 3 credits .....	Summer		
*Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Qualitative and Quantitative Analysis, Mineralogy, Chem. 211, 212, Geol. 220, Cer. E. 202, 203 .....	3	3	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Engineering Geology, Ceramic Materials, Ceramic and Mining Processes, Geol. 220, Cer. E. 202, 203 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

\* Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

## Major in Chemical Engineering

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
*Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Qualitative and Quantitative Analysis, Chem. 211, 212, 213 .....	4	4	4
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Introduction to Chemical Engineering, Chem. E. 201, 202, 203 .....	1	1	2
Shopwork, M. E. 122, 123 .....	1	1	0
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

## Major in Civil Engineering

Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
**Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Engineering Geology, Engineering Mechanics, Geol. 220, E. M. 311, 312	3	3	3
Theoretical Surveying, C. E. 221, 222, 223 .....	3	3	3
Field Surveying, C. E. 225, 227 .....	1	0	1
Mapping, C. E. 226 .....	0	1	0
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1
Surveying, C. E. 310, 3 credits .....	Summer		

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

\* Students who have been certified by the Department of English as proficient in English may substitute for the courses listed Elementary German, M. L. 103, 104, 203 or equivalent.

\*\* Students who have been certified by the Department of English as proficient in English may substitute for the courses listed Elementary French, M. L. 101, 102, 201 or equivalent.

## Major in Electrical Engineering

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Surveying, C. E. s200, 3 credits .....	Summer		
*Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
General Economics, Econ. 201, 202, 203 .....	3	3	3
Electrical Engineering Fundamentals, Forge and Welding, E. E. 201, 202, M. E. 128 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

## Major in General Engineering

Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Surveying, C. E. s200, 3 credits .....	Summer		
*Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
†Electives .....	6	6	6
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

\* Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

† Free electives, except that not more than 39 term credits may be chosen from the technical or special technical courses in the School of Engineering.

## Major in Geological Engineering

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
*Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Qualitative and Quantitative Analysis, Geomorphology, Chem. 211, 212, Geol. 223 .....	4	4	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Engineering and Historical Geology, Mineralogy, Geol. 220, 222, 230 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

## Major in Industrial Engineering

Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
**Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
General Economics, Econ. 201, 202, 203 .....	3	3	3
Shopwork, M. E. 124, 125, 126 .....	2	2	2
Industrial Organization, I. E. 101, 102, 103 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

\* Students who have been certified by the Department of English as proficient in English may substitute for the courses listed Elementary French, M. L. 101, 102, 201.

\*\* Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

## Major in Mechanical Engineering

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra, Trigonometry, Analytics, Math. 101, 102, 103 .....	6	6	6
Engineering Drawing II, Descriptive Geometry, M. E. 105, 106, 107 .....	3	3	3
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Surveying, C. E. s200, 3 credits .....	Summer		
*Business English, Public Speaking, Eng. 211, 231, and elective English	3	3	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Mechanical Drawing, M. E. 211, 212, 213 .....	2	2	2
Shopwork, M. E. 124, 125, 126 .....	2	2	2
Engineering Mechanics, E. M. 311, 312 .....	0	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

## TEACHER EDUCATION

## For Teachers of Agriculture

Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Algebra and Trigonometry, Math. 111, 112 .....	0	4	4
Economic History, Hist. 101, 102, 103 .....	3	3	3
Gen. Zoology, Gen. Botany, Phys. Geology, Zool. 101, Bot. 102, Geol. 120	4	4	4
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
Gen. Poultry, Anim. Nutrition, Gen. Horticulture, Poul. 201, A. H. 202, Hort. 203 .....	3	3	3
Prin. of Forestry, Farm Equipment, Gen. Field Crops, For. 111, Agr. Eng. 202, F. C. 202 .....	3	3	3
Gen. Botany, Econ. Zoology, Soils, Bot. 101, Zool. 102, Soils 201 .....	4	4	5
Physics for Ag. Students, Int. to Org. Chemistry, Animal or Plant Physiology, Phys. 115, Chem. 221, Zool. 202 or Bot. 221 .....	5	4	5
General and Agr. Economics, Econ. 201, 202, Agr. Econ. 202 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

\* Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

## For Teachers of Industrial Arts and Teachers of Industrial Education

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 or optional science	4	4	4
Algebra, Trigonometry, Mathematics of Finance, Math. 111, 112, 113	4	4	4
Industrial Arts Drawing, Ed. (I. A.) 105a, b, c	3	3	3
Industrial Arts, Ed. (I. A.) 106a, b, c	3	3	3
†Military Science I, Mil. 101, 102, 103	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103	1	1	1
Business English, Public Speaking, English Elective, Eng. 211, 231	3	3	3
General Physics, Phys. 105, 106, 107	4	4	4
Economic History, Hist. 101, 102, 103	3	3	3
General Sociology, Soc. 202, 203	3	3	0
Industrial Arts Design, Ed. (I. A.) 205	0	0	3
Laboratory Problems in Industrial Arts, Ed. (I. A.) 206a, b, c	3	3	3
†Military Science II, Mil. 201, 202, 203	2	2	2
Sport Activities, P. E. 201, 202, 203	1	1	1

## For Teachers of Occupational Information and Guidance

Composition, Eng. 101, 102, 103	3	3	3
Algebra, Trigonometry, Mathematics of Finance, Math. 111, 1112, 113	4	4	4
Science, elective	4	4	4
Economic History, Hist. 101, 102, 103	3	3	3
General Sociology, Soc. 202, 203	3	3	0
Occupations, Ed. 103	0	0	3
†Military Science I, Mil. 101, 102, 103	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103	1	1	1
Business English, Public Speaking, English Elective, Eng. 211, 231	3	3	3
General Economics, Econ. 201, 202, 203	3	3	3
History of the United States, Hist. 200, 201, 202	3	3	3
Science elective	4	4	4
*Electives	3	3	3
†Military Science II, Mil. 201, 202, 203	2	2	2
Sport Activities, P. E. 201, 202, 203	1	1	1

† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, Social Science.



## TEXTILES

Majors in Textile Manufacturing, Textile Chemistry and Dyeing, Yarn Manufacturing, Textile Management, Weaving and Designing.

Courses	Terms and Credits		
	F	W	S
Composition, Eng. 101, 102, 103 .....	3	3	3
Algebra, Trigonometry, Mathematics of Finance, Math. 111, 112, 113 ..	4	4	4
Physics for Textile Students, Phys. 111, 112, 113 .....	4	4	4
Shopwork, M. E. 121, 122, 123 .....	1	1	1
Engineering Drawing I, M. E. 101, 102, 103 .....	2	2	2
Textile Principles Laboratory, Tex. 101, 102, 103 .....	1	1	1
Yarn Calculations, Cloth Calculations, Tex. 104, 131 .....	0	1	2
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Economic History, Hist. 101, 102, 103 .....	3	3	3
Cotton, Cotton Classing II, F. C. 201, 212 .....	3	3	0
Decorative Drawing, Light in Industry, Arch. 106, Phys. 311 .....	3	0	3
Knitting Laboratory, Tex. 207, 208, 209 .....	1	1	1
Knitting I, Fabric Structure and Analysis, Tex. 211, 236, 237 .....	2	2	2
Power Weaving, Tex. 234 .....	0	2	0
Power Weaving Laboratory, Tex. 231, 232 .....	1	1	0
Yarn Manufacturing, Tex. 205 .....	0	0	3
Yarn Manufacturing Laboratory, Tex. 201, 203 .....	1	0	1
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1

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† Or six credits in one or two of the following departments: Economics, Ethics and Religion, History and Political Science, Modern Languages, Psychology, Sociology.

## THE SCHOOL OF AGRICULTURE AND FORESTRY

Ira Obed Schaub, Dean and Director of Extension

Zeno Payne Metcalf, Director of Instruction

Leonard David Baver, Director of the Agricultural Experiment Station

**Organization.**—The School of Agriculture and Forestry is organized in three divisions—Resident Instruction, Agricultural Extension and the Agricultural Experiment Station—to carry on the functions of instruction, extension and research. These divisions are organized as departments as follows: (a) Agricultural Economics, including Farm Marketing and Farm Management; (b) Agricultural Engineering, including Farm Structures and Farm Machinery; (c) Agronomy, including Field Crops, Soils, and Plant Breeding; (d) Animal Industry, including Animal Production, Animal Nutrition, Dairy Production, and Dairy Manufacturing; (e) Botany, including Bacteriology, Plant Physiology, and Plant Diseases; (f) Chemistry; (g) Experimental-Statistics; (h) Forestry, including Silviculture, Utilization, and Management; (i) Horticulture, including Pomology, Small-Fruit Culture, Floriculture, Truck Farming, and Landscape Architecture; (j) Poultry Science, including Poultry Diseases, Poultry Breeding, Poultry Feeding, and Poultry Management; (k) Rural Sociology; (l) Zoölogy, including Genetics, Entomology, Animal Physiology, and Wild Life Management.

**Purpose.**—The purpose of the School of Agriculture and Forestry is threefold: (1) To obtain through scientific research, experimentation, and demonstration accurate and reliable information relating to soils, plants, and animals, and to obtain from every available source reliable statistical, technical, and scientific data relating to every phase of agriculture that might be of advantage to the State; (2) to provide instruction in the College for young men who desire to enter the field of general agriculture, or wish to become professionals in agricultural education or specialists in any field of science related to agriculture; (3) to disseminate reliable information through publications and through extension agents, and by a wise use of this information to give instruction to agricultural workers in the scientific, experimental, and practical progress in the various lines of agriculture.

All effective instruction in agriculture is based on research and investigation; and the curricula are so organized that not only the subject matter for classroom instruction and extension work may be drawn from research, experimentation, and demonstration, but also that the students themselves shall have the opportunity to work under the direction of research specialists.

The vocations open to young men well trained in agriculture and the opportunities afforded for distinct service to the State are now greater than ever before. In order that the more important vocations in agriculture may be presented to the youth of the State, the courses of study are so organized as to give specific training for the following major vocations.

General Farming	Poultry Raising
Agricultural Extension Work	Manufacturing of Dairy Products
Agricultural Service in State or Federal Departments	Forestry
Stock Raising and Dairying	Fruit Growing
Agricultural Service in Foreign Lands	Truck Farming

In addition to these major vocations, the School of Agriculture gives instruction in Beekeeping, Floriculture, and the basic instruction for teachers of Agriculture.

**Admission; Advanced Standing.**—Regulations for admission and for advanced standing are stated under Information for Applicants. (See pages 25, 26.)

**Graduates in Liberal Arts.**—Selected courses leading to the degree of Bachelor of Science in Agriculture are offered to graduates of universities and standard colleges. These are arranged in accordance with the vocational aim of the individual student, and in the light of credits presented from the institution by which the student has been graduated, subject to the approval of his adviser and the Director of Instruction. In cases where the student presents enough credits which may be used for courses required in his curriculum, he may be graduated with a B.S. degree in one year. In no case should it take more than two years to complete the work for this degree.

**Graduation.**—The requirement for graduation is the satisfactory completion of one of the curricula outlined below.

A minimum of 230 term credits with at least 230 honor points is required for graduation by the School of Agriculture. The term credits should be distributed as follows: A maximum of 60 in the major Department, and a minimum of 18 in Language, 24 in Physical Science, 18 in Social Science, 12 in Military Science or alternative, and 6 in Physical Education.

Students entering with advanced standing are required, in the remainder of their course, to earn at least as many points as the number of term credits remaining necessary for graduation.

**Degrees.**—The degrees of Bachelor of Science in Agriculture and Bachelor of Science in Forestry are conferred upon the satisfactory completion of one of the curricula in this School.

The degree of Master of Science in Agriculture is offered for the satisfactory completion of one year of graduate study in residence. Candidates for this degree are enrolled as students in the Graduate School.

The professional degree of Master of Agriculture may be conferred upon graduates of State College after five years of service in agriculture, and upon the acceptance of a satisfactory thesis.

**Curricula.**—The curricula in Agriculture offer a combination of practical and theoretical work. About half of the time is devoted to lectures and recitations, the other half to work in shops, laboratories, greenhouses, dairies, poultry yards, and on the College farm.

In order that every graduate of the School of Agriculture shall acquire a liberal education rather than specializing too narrowly, and shall become a leader having breadth of vision, the curricula in Agriculture contain broadening subjects: language, literature, history, and the social sciences.

The School of Agriculture and Forestry offers the following curricula:

A. In General Agriculture with opportunities to specialize during junior and senior years in any of the following:

- |                                    |                            |
|------------------------------------|----------------------------|
| 1. Farm Business Administration    | 8. Floriculture            |
| 2. Farm Marketing and Farm Finance | 9. Plant Pathology         |
| 3. Rural Sociology                 | 10. Pomology               |
| 4. Animal Production               | 11. Poultry Science        |
| 5. Dairy Manufacturing             | 12. Soils                  |
| 6. Entomology                      | 13. Vegetable Gardening    |
| 7. Field Crops and Plant Breeding  | 14. Agricultural Chemistry |
| B. In Agricultural Engineering     |                            |
| C. In Forestry                     |                            |
| D. In Landscape Architecture       |                            |
| E. In Wildlife Management          |                            |

## GENERAL AGRICULTURE

**First Two Years.**—The freshman and sophomore years for all courses are outlined on a following page. This curriculum is intended to train students in broad basic fields of agriculture. For junior and senior years, the curriculum of each student is arranged in accordance with his vocational aims, subject to the approval of his adviser and the Director of Instruction.

**Professional Opportunities.**—Students who specialize in some department of the School of Agriculture may look forward to one of the following professions:

**Specialists in State or Federal Departments, or in Agriculture Colleges.**—The School of Agriculture is equipped to train men as specialists in the various fields as indicated by the curricula outlined below.

**Inspectors.**—Most States now maintain inspection of fertilizers, seeds, nurseries, and insecticides. Most cities have special inspectors for their milk supplies. Students seeking vocational opportunities in these fields may elect appropriate subjects in their junior and senior years.

**Extension Specialists.**—Students in this group will find employment as agricultural agents for railroads, and for commercial firms dealing in agricultural products; as specialists in the various fields of agriculture in the extension departments of agricultural colleges, and as county agricultural agents.

**County Agents.**—The growing importance of marketing agricultural products and the need for better organization of farms has given rise to a strong demand for county agents who have had special training in Agricultural Economics.

**Specialists and Commercial Agricultural Agents.**—The School of Agriculture is well equipped to train men for agricultural industries, such as manufacturing fertilizers, livestock and poultry feeds, farm machinery, and dairy and horticultural products. These concerns are usually anxious to obtain men who have had actual agricultural experience, and who, in addition, have had special training in agricultural economics, accounting, and statistics. This field is developing rapidly and offers an attractive opportunity for students who wish to enter the purely commercial field.

**Agricultural Specialists in Foreign Lands.**—The School of Agriculture is well equipped to train men as experts in cotton and tobacco production in foreign lands.

**Junior Agriculture Economist.**—A position as a junior agricultural economist involves research in Agricultural Economics. Such positions are usually available in the governmental departments, such as United States Department of Agriculture and in various State institutions.

**Farm Manager.**—There is a growing demand for men who have had practical farm experience and who have special training in farm organization and management. Though this field is practically a new one, there have been many requests for men with special training in farm management.

**Marketing Specialists.**—There is a growing demand for men who can manage coöperative marketing and other farmers' business associations.

## FOR ALL CURRICULA IN AGRICULTURE

(Except Agricultural Chemistry, Agricultural Engineering, Forestry, Landscape Architecture, and Wildlife Conservation and Management.)

### Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
General Botany, Bot. 102 .....	0	4	0
General Zoology, Zool. 101 .....	4	0	0
Physical Geology, Geol. 120 .....	0	0	4
Economic History, Hist. 101, 102, 103 .....	3	3	3
Mathematical Analysis, Math. 111, 112 .....	0	4	4
Military Science I, Mil. 101, 2, 3, or alternate .....	2	2	2
Fundamental Activities and Hygiene, P. E. 101, 102, 103 .....	1	1	1
	17	21	21

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Farm Equipment, Agr. Eng. 202	0	3	0
Soils, Soils 201	5	0	0
General Economics, Econ. 201, 202	3	3	0
Agricultural Economics, Agr. Econ. 202	0	0	3
Physics for Agricultural Students, Phys. 115	0	5	0
Animal Physiology, Zool. 202, or Plant Physiology, Bot. 221	0	0	5
Economic Zoology, Zool. 102	0	4	0
General Botany, Bot. 101	0	0	4
Introduction to Organic Chemistry, Chem. 221	0	4	0
Animal Nutrition I, A. H. 202	0	3	0
General Poultry, Poul. 201	3	0	0
Principles of Forestry, For. 111	3	0	0
General Horticulture, Hort. 203	0	0	3
General Field Crops, F. C. 202	0	0	3
Military Science II, Mil. 201, 2, 3, or alternate	2	2	2
Sport Activities, P. E. 201, 202, 203	1	1	1
	21	21	21

## AGRICULTURAL ECONOMICS

Professor G. W. Forster, Head of the Department

Professors C. Horace Hamilton, Marc C. Leager; Associate Professor R. E. L. Greene; Assistant Professor Nils Gunnar Lange; Instructor, Richard L. Anderson.

**Facilities.**—The Department of Agricultural Economics has available for its use 15 offices, a seminar room, a document room, a workshop, and a Departmental classroom. The Department is supplied with various calculating devices. In addition, by special arrangement of one of the large calculating-machine companies, a supply of calculators and tabulating devices is adjusted to the need for them. Charts on practically every phase of agricultural economics are at hand or are available through the courtesy of the U. S. Department of Agriculture. A large number of maps of farms located in various parts of the state is used as a basis for studying and for illustrating the principles and practices of farm management. The results of research in marketing, agricultural finance, taxation, insurance, and soil conservation practices have made a large volume of statistical information constantly available for undergraduate and graduate students. Maintained for reference is an up-to-date file of bulletins and documents covering all phases of agricultural economics.

**The State a Laboratory.**—The State of North Carolina is a laboratory for the Department. Studies are in progress on all important phases of agricultural economics: marketing of cotton, tobacco, fruits, and vegetables; farm credit, taxation of agriculture, farm prices, farm organization and management, land classification and land use. It is significant to the student in agricultural economics that much of the research is done in coöperation with the various agencies of the Federal Government.

**Statistical Laboratory.**—All students in the department will have access to the facilities and personnel of the new Statistical Laboratory established at State College in coöperation with the U. S. Department of Agriculture, through formal courses and informal conferences.

## CURRICULA IN AGRICULTURAL ECONOMICS

## Farm Business Administration

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English .....	3	3	3
Farm Management I, Agr. Econ. 303 .....	0	0	3
Principles of Accounting, Econ. 301, 302, 303 .....	3	3	3
Farm Shop Work, Agr. Eng. 331, 32 .....	3	3	0
Economics .....	3	3	3
Technical Agricultural Courses .....	3	3	3
**Electives .....	3	3	3
	18	18	18

## Senior Year

Agricultural Finance, Agr. Econ. 432 .....	0	3	0
Farm Management II, Agr. Econ. 423 .....	0	0	3
Farm Buildings, Agr. Eng. 322 .....	0	3	0
Farm Cost Accounting, Agr. Econ. 402, 403 .....	0	3	3
Agr. Marketing, Agr. Econ. 411 .....	3	0	0
Terracing and Drainage, Agr. Eng. 303 .....	0	0	3
Social Aspects of Land Tenure, Rur. Soc. 422 or Land Economics, Agr. Econ. 412 .....	0	3	0
Agr. Drawing, Agr. Eng. 222 .....	0	3	0
Survey of Statistical Methods, Econ. 408 .....	3	0	0
Statistics .....	0	3	0
Technical Agricultural Courses .....	6	0	3
Electives .....	3	0	3
**Electives .....	3	3	3
	18	21	18

## Farm Marketing and Farm Finance

For Freshman and Sophomore Years refer to page 61.

## Junior Year

English .....	3	3	3
Marketing Methods, Econ. 311, 312 .....	3	3	0
Rural Sociology, Rur. Soc. 302 .....	0	3	0
Farm Management I, Agr. Econ. 303 .....	0	0	3
Agr. Marketing, Agr. Econ. 411 .....	3	0	0
Principles of Accounting, Econ. 301, 302, 303 .....	3	3	3
Economics .....	3	3	3
Electives .....	0	0	4
**Electives .....	3	3	3
	18	18	19

## Senior Year

Marketing Methods and Problems, Agr. Econ. 421 .....	3	0	0
Cotton and Tobacco Marketing, Agr. Econ. 442 .....	0	3	0
Agricultural Finance, Agr. Econ. 432 .....	0	3	0
Agricultural Cooperation, Agr. Econ. 422 .....	0	3	0
Rural Population Problems, Rur. Soc. 411 .....	3	0	0
Community Organization, Rur. Soc. 413 .....	0	0	3
Survey of Statistical Methods, Econ. 408 .....	3	0	0
Statistics .....	0	3	0
Economics .....	3	3	3
Technical Agricultural Courses .....	3	0	6
Electives .....	0	0	3
**Electives .....	3	3	3
	18	18	18

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## AGRICULTURAL ENGINEERING

Professor D. S. Weaver, Head of the Department

Associate Professors G. W. Giles, A. T. Hendrix.

**Purpose.**—This curriculum has been arranged to give its graduates fundamental training in engineering, basic training in the agricultural sciences, and a specialized study in courses involving the application of engineering knowledge to agricultural problems.

**Breadth of Training.**—Because of the great variety of work required of agricultural engineers, a number of subjects peculiar to other curricula are included, so that the student receives a considerable breadth of training. Engineering principles applied to agriculture have played an important part in the advancement and development of agricultural practices. Agricultural engineering as a profession, although of comparatively recent development, is rapidly becoming recognized as one of the more important of the engineering professions, since it is identified with the most important of industries—agriculture. This course is especially suited to the boy brought up on the farm, as it prepares him for professional business, or farming career, and enables him to capitalize on his farm experience.

**Divisions.**—Subdivided on the basis of engineering technique, Agricultural Engineering embraces three general fields: (1) Power and Machinery, including Rural Electrification; (2) Rural Structures, including Sanitation, Materials of Construction and Equipment; (3) Land Improvement, which includes Irrigation, Drainage, Soil-Erosion Control, and other forms of mechanical improvement of agricultural lands.

**Occupations Open to Graduates.**—Teaching, experiment station and extension-service positions with colleges and the Government; engineers in land reclamation, drainage, or irrigation enterprises; designing, advertising, sales and production work with manufacturers of farm machinery, equipment, and building materials; rural electrification work; editorial work with publishers; appraisal, and agricultural-engineering consultant service.

**Equipment.**—The offices, classrooms, and shops used in Agricultural Engineering are in the Agricultural Engineering Building. The laboratories have the latest labor-saving farm equipment for seedbed preparation, planting, cultivating, harvesting, and crop preparation. These machines are furnished by the leading farm-machinery manufacturers, and are replaced from time to time as improvements are developed. Special effort is made to have on hand all types of equipment for use in the best practices in the production of farm crops.

**The Farm Buildings Laboratory** is equipped with drawing tables, supply cabinets, and models of various types of farm-buildings construction.

**Laboratory Equipment for Soil Conservation**, such as that for terracing and gully control, consists of sets of surveying and leveling instruments.



Practice.—Field areas in crops, vineyards, orchards, and pastures are available for practice in the use of farm equipment, and in drainage and erosion control.

A Bulletin Library of Agricultural Engineering is maintained for student reference.

## CURRICULUM IN AGRICULTURAL ENGINEERING

### Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Trigonometry, and Analytical Geometry, Math. 101, 102, 103 .....	6	6	6
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Engineering Drawing II, M.E. 105, 106 .....	3	3	0
Descriptive Geometry, M.E. 107 .....	0	0	3
Military Science I, Mil. 101, 2, 3, or alternate .....	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103 ..	1	1	1
	<hr/> 19	<hr/> 19	<hr/> 19
Summer requirement:—Surveying, C. E. s.200.			

### Sophomore Year

Engineering Geology, Geol. 220 .....	0	0	3
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Business English, Public Speaking, Eng. 211, 231 .....	3	0	3
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Farm Equipment, Agr. Eng. 202 .....	0	3	0
General Botany, Bot. 102 .....	0	4	0
General Zoology, Zool. 101 .....	4	0	0
Economic History, Hist. 101, 102, 103 .....	3	3	3
Military Science II, Mil. 201, 2, 3, or alternate .....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
	<hr/> 21	<hr/> 21	<hr/> 20

### Junior Year

#### Required for All Options

General Economics, Econ. 201, 202 .....	3	3	0
Agricultural Econ., Ag. Econ. 202 .....	0	0	3
Terracing and Drainage, Agr. Eng. 303 .....	0	0	3
Farm Shop, Agr. Eng. 331, 332 .....	3	3	0
General Field Crops, F.C. 202 .....	0	3	0
General Horticulture, Hort. 203 .....	0	0	3
Farm Buildings, Agr. Eng. 322 .....	0	3	0
	<hr/> 6	<hr/> 12	<hr/> 9

Choice must be made of one of the following options:

#### General Option

Animal Nutrition I, A. H. 202 .....	0	3	0
Extension Methods, Ag. Econ. 450 .....	3	0	0
Engineering Mechanics, E.M. 311, 312, 313 .....	3	3	3
Strength of Materials, E.M. 321 .....	0	0	3
Soils, Soils 201 .....	5	0	0
**Electives .....	3	3	3
	<hr/> 14	<hr/> 9	<hr/> 9

\*\* Three credits per term to be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## Rural Structures Option

COURSES	CREDITS		
	First Term	Second Term	Third Term
Materials of Construction, C.E. 321 .....	3	0	0
Engineering Thermodynamics II, M.E. 307-8-9 .....	3	3	3
Perspective Drawing Arch. 206 .....	1	0	0
Engineering Mechanics, E.M. 311-12-13 .....	3	3	3
Strength of Materials, E.M. 321 .....	0	0	2
**Electives .....	3	3	2
	13	9	12

## Land Improvement Option

Soils, Soils 201 .....	5	0	0
Fertilizers, Soils 302 .....	0	3	0
Int. to Organic Chemistry, Chem. 221 .....	4	0	0
Engineering Mechanics, E.M. 311, 312, 313 .....	3	2	3
Pastures and Forage Crops, F.C. 443 .....	0	0	4
**Electives .....	3	3	3
	15	9	10

## Power and Machinery Option

Mechanical Drawing, M.E. 211-12-13 .....	2	2	2
Foundry, M.E. 122 .....	1	0	0
Forging and Welding, M.E. 126 .....	2	0	0
Elementary Mechanism, M.E. 215-16-17 .....	1	1	1
Metallurgy, M.E. 222, 223 .....	0	3	3
**Electives .....	6	3	3
	12	9	9

## Senior Year

## Required for all Options.

Rural Electrification, Agr. Eng. 432 .....	0	3	0
Special Problems in Agr. Eng., Agr. Eng. 451 .....	3	0	0
Senior Seminar, Agr. Eng. 451, 452, 453 .....	1	1	1
Farm Management I, Ag. Econ. 303 .....	0	0	3
Technical Writing I, Eng. 321 .....	0	3	0
Rural Sociology, Rur. Soc. 302 .....	0	3	0
	4	10	4

Choice must be made of one of the following Options

## General Option

Dairy Machinery, A.H. 362 .....	0	1	0
Dairy Cattle and Milk Production, A.H. 321 .....	3	0	0
Farm Machinery and Tractors, Agr. Eng. 313 .....	0	0	3
Erosion Prevention, Ag. Eng. 403 .....	0	0	3
Farm Structures, Agr. Eng. 423 .....	0	0	3
Soil Conservation and Land Use, Soils, 433 .....	0	0	3
Principles of Forestry, For. 111 .....	3	0	0
Cereal Crops, F.C. 302 .....	0	3	0
General Poultry, Poul. 201 .....	3	0	0
**Electives .....	6	6	6
	15	10	15

\*\* Three credits per term to be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## Rural Structures Option

COURSES	CREDITS		
	First Term	Second Term	Third Term
Graphic Statics, C.E. 423 .....	1	0	0
Electrical Equipment for Building, E.E. 343 .....	0	0	3
Construction Engineering I, C.E. 361, 362, 363 .....	3	3	3
General Poultry, Poul. 201 .....	3	0	0
Farm Structures, Agr. Eng. 423 .....	0	0	3
Dairy Cattle and Milk Production, A.H. 321 .....	3	0	0
Heating and Air Conditioning I, M.E. 404 .....	0	3	0
Refrigeration, M.E. 405 .....	0	0	3
**Electives .....	3	3	3
	13	9	15

## Land Improvement Option

Hydraulic Structures, C.E. 443 .....	0	0	3
Soil Conservation and Land Use, Soils 433 .....	0	0	3
Erosion Prevention, Agr. Eng. 403 .....	0	0	3
Soils of North Carolina, Soils 312 .....	0	3	0
Farm Machinery and Tractors, Agr. Eng. 313 .....	0	0	3
Land Economics, Ag. Econ. 212 .....	0	3	0
Principles of Forestry, For. 111 .....	3	0	0
Fluid Mechanics, E.M. 330 .....	3	0	0
**Electives .....	9	3	3
	15	9	15

## Power and Machinery Option

Farm Machinery and Tractors, Agr. Eng. 313 .....	0	0	3
Dairy Machinery, A.H. 362 .....	0	1	0
Special Problems, Agr. Eng. 481, 483 .....	3	0	3
Engineering Mechanics, E.M. 311, 312, 313 .....	3	3	3
Elements of Electrical Eng. I, E.E. 320, 321 .....	3	3	0
Electrical Equipment of Buildings, E.E. 343 .....	0	0	3
**Electives .....	6	3	3
	15	10	15

## AGRONOMY

Professor R. W. Cummings, Head of the Department

Professor Emeritus C. B. Williams

The teaching in this department is divided into two sections: Field Crops Section and Soils Section. Its objective is to provide a well-rounded practical as well as technical training for students in field crops, plant breeding, soils, fertilizers and other closely related subjects.

The combined facilities of the Consolidated University and of the Experiment Station provide excellent opportunities for advanced training leading to M.S. and Ph.D. degrees in Agronomy.

The advanced courses offered fulfill the needs of graduate work in all phases of Agronomy.

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\*\* Three credits per term to be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## FIELD CROPS SECTION

Professor G. K. Middleton, Head of Section

Associate Professors R. L. Lovvorn, J. A. Rigney, A. D. Stuart; Assistant

Professors B. W. Smith, W. C. Gregory.

Approximately eighty per cent of the farm income in North Carolina is from field crops, and their annual value is such that the State ranks third in the Nation in cash income from this source. The curriculum in this Section is set up to give definite instruction on the crops produced in the State and in plant breeding.

This curriculum is flexible, making it possible for students to elect sufficient courses in other departments for a general training in Agriculture, or for specialization in preparation for graduate work in Agronomy. The more general training will equip them for work with the Agricultural Extension Service or in one of the several agencies administered by the U. S. Department of Agriculture; or as better farmers.

Advanced training is provided for those who desire to go into the more technical phases of crop production or plant breeding, such as teaching or research in State or Federal institutions.

## CURRICULUM IN FIELD CROPS

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English .....	3	3	3
Soils of N. C., Soils 312 .....	0	3	0
Fertilizers, Soils 302 .....	3	0	0
Soil Management, Soils 303 .....	0	0	3
Cereal Crops, F.C. 302 .....	0	3	0
Pastures and Forage Crops, F.C. 443 .....	0	0	4
Diseases of Field Crops, Bot. 301 .....	3	0	0
Major Options .....	6	6	4
Electives .....	3	4	4
	<hr/> 18	<hr/> 19	<hr/> 18

## Senior Year

Genetics, Zool. 411 .....	4	0	0
Plant Breeding, F.C. 463 .....	0	3	0
Major Option .....	4	3	0
Tech. Agr. ....	6	6	6
Electives .....	4	6	12
	<hr/> 18	<hr/> 18	<hr/> 18

## SOILS SECTION

Professor J. F. Lutz, Head of Section

Professor R. W. Cummings; Associate Professor E. R. Collins, W. E. Colwell

Assistant Professors, W. D. Lee, J. R. Piland

The soil is a natural body composed of mineral and organic matter, air, water, and living micro-organisms. The reactions of and changes in these components extend into the fields of chemistry, geology, physics and biology, which sciences are fundamentals to soils. No state in the Union offers better opportunities for soil and fertilizer studies than North Carolina for within her borders are soils derived from a large variety of parent materials and developed under climatic conditions varying from a subtropical climate in the southeastern part of the state to the cooler climates of the mountains. This state has been one of the few which has steadily pushed forward her soil-survey work so that now county soil-survey reports and maps are available for practically all the counties of the entire state.

The importance of soils in North Carolina agriculture is evidenced by the fact (1) that more fertilizer is used in North Carolina than in any other state in the Union and (2) that North Carolina ranks third among the states in cash income derived from farm crops.

Students are given practical training in the properties and management of soils which equips them for general agricultural work, such as farmers, county agents, and vocational teachers. Advanced training is provided for those who desire to go into the more technical phases of soils, such as teaching or research in State or Federal institutions. The flexibility of the curriculum in soils, through a sufficient number of optional courses, permits the student to choose the type of training he desires.

## CURRICULUM IN SOILS

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English or Modern Language .....	3	3	3
Fertilizers, Soils 302 .....	3	0	0
Soil Management, Soils 303 .....	0	0	3
Cereal Crops, F.C. 302 .....	0	3	0
Pasture and Forage Crops, F.C. 443 .....	0	0	4
Qualitative and Quantitative Analysis, Chem. 211, 212, 213 .....	4	4	4
Major Options .....	6	0	0
Electives .....	3	9	3
	19	19	17

## Senior Year

Genetics, Zool. 411 .....	4	0	0
*Plant Breeding, F.C. 463 .....	0	0	3
Major Options .....	6	6	6
Technical Agriculture .....	6	6	6
Electives .....	3	6	3
	19	18	18

\* F.C. 312, Tobacco Production or F.C. 323, Cotton Production or F.C. 461, Taxonomy of Field Crops, may be substituted for Plant Breeding.

## ANIMAL HUSBANDRY AND DAIRYING

Professor A. O. Shaw, Head of the Department

Professors R. H. Ruffner, E. H. Hostetler, W. J. Peterson, W. L. Clevenger, J. E. Foster, F. M. Haig; Associate Professors C. D. Grinnells, D. E. Brady.

The Department of Animal Husbandry and Dairying is housed in Polk Hall, a three-story building which was designed to meet the needs of college instruction, research, and extension work in Animal Production and Dairy Manufacturing.

In the basement of Polk Hall are two wings, one of which is devoted to Dairy Manufacturing and the other to Farm Meats. The Dairy wing has recently been equipped with new dairy machinery, including direct-expansion ice cream freezer, churn, pasteurizer, milk bottler, and milk-cooling and storage equipment. This equipment is used daily by students who bottle milk, and manufacture ice cream and other dairy products used in the College Cafeteria. The other wing is used for slaughtering beef cattle, sheep, and swine, and for the aging and curing of the meats produced from these animals. Sufficient equipment is provided in the Meat Laboratory to do the necessary work in the time allotted, yet the courses are so adapted that the students can apply both theory and practice to conditions on the farm. Both the dairy and the meat wings have their own individual mechanical refrigeration units so that the courses can be taught at any season of the year.

The upper floors of the building contain offices, classrooms, library, milk-testing laboratory, farm-dairy laboratory, animal-nutrition laboratories, and beef cattle, sheep, and swine research laboratories. Extension specialists in swine, dairy, beef, and sheep have offices in this building.

In addition, the Department of Animal Husbandry and Dairying maintains three livestock farms located a few miles from the College.

The Dairy Farm contains 400 acres. Two fire-proof completely equipped dairy barns house 140 registered Jerseys, Guernseys and Holsteins. A herd of registered Ayrshires is maintained at the College Experiment Station nearby. A milk house, designed for convenience in handling milk in the most efficient and sanitary manner, connects the two barns. Other buildings located on the dairy farm are horse and calf barns.

The Animal Husbandry Farm adjoining the Dairy Farm contains 500 acres. Here registered breeds of swine, sheep, horses, and beef cattle are maintained for research and college teaching.

The Department of Animal Husbandry and Dairying is equipped to instruct students in the feeding, breeding, and management of farm animals. Students feed and milk cows; conduct research; manufacture dairy products; feed and prepare animals for exhibition and the block, actually doing the slaughtering, and the cutting of the meat for market and home use.

Well-trained young men in the various fields of Animal Husbandry and Dairying have greater opportunities for service and success than ever before. This fact is demonstrated by the following responsible positions held by graduates in Animal Husbandry and Dairying:

1. Livestock and dairy farmers.
2. County agents and extension specialists in livestock.
3. Livestock research investigators.
4. Superintendents and owners of dairy manufacturing plants.
5. Teachers in agricultural colleges.
6. Managers and salesmen in commercial livestock and feed companies.
7. Milk inspectors.
8. Workers for livestock breed associations.
9. Workers for banks and corporations in livestock industries.
10. Supervisors of dairy herd improvement associations.

## CURRICULUM IN ANIMAL PRODUCTION

For Freshman and Sophomore Years refer to page 61.

### Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Dairying, A.H. 341 .....	0	3	0
Swine Production, A.H. 331 .....	3	0	0
Farm Meats I, A.H. 301 .....	0	3	0
Animal Nutrition II, A.H. 361 .....	3	0	0
History of Breeds, A.H. 322 .....	0	3	0
Market Types of Livestock, A.H. 323 .....	0	0	3
Herd Improvement, A.H. 413 .....	0	0	3
Business English, Eng. 211 .....	0	0	3
Public Speaking, Eng. 231 .....	0	3	0
Elective English .....	3	0	0
Genetics, Zool. 411 .....	4	0	0
Pastures and Forage Crops, F.C. 443 .....	0	0	4
Chemistry of Vitamins, Chem. 462 .....	0	3	0
Market Grading of Field Crops, F.C. 451 .....	3	0	0
Animal Hygiene and Sanitation, A.H. 353 .....	0	0	3
Electives .....	3	3	3
	19	18	19

### Senior Year

Animal Breeding, A.H. 421 .....	4	0	0
Sheep Production, A.H. 313 .....	0	0	3
Beef Cattle, A.H. 372 .....	0	3	0
Pure Bred Livestock Production, A.H. 432 .....	0	3	0
Stock Farm Management, A.H. 433 .....	0	0	3
Horse and Mule Production, A.H. 351 .....	3	0	0
or Dairy Cattle and Milk Production, A.H. 321			
Senior Seminar, A.H. 391-392-393 .....	1	1	1
Incubation and Brooding, Poul. 303 .....	0	0	3
Terracing and Drainage, Agr. Eng. 303 .....	0	0	3
General Bacteriology, Bot. 402 .....	0	4	0
Fruit Growing, Hort. 331 .....	4	0	0
Agricultural Marketing, Agr. Econ. 411 .....	3	0	0
Testing of Milk Products, A.H. 332 .....	0	4	0
Business Law, Econ. 307 .....	0	0	3
Electives .....	3	3	3
	18	18	19

## CURRICULUM IN DAIRY MANUFACTURING

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Creamery Buttermaking, A.H. 371 .....	4	0	0
Testing of Milk Products, A.H. 332 .....	0	4	0
Ice Cream Making, A.H. 381 .....	4	0	0
Cheese Making, A.H. 333 .....	0	0	3
Dairy Manufacturing Practice, A.H. 342 .....	0	3	0
City Milk Supply, A.H. 343 .....	0	0	4
Business English, Eng. 211 .....	0	0	3
Public Speaking, Eng. 231 .....	0	3	0
Elective English .....	3	0	0
Chemistry of Vitamins, Chem. 462 .....	0	0	3
Animal Breeding, A.H. 421 .....	4	0	0
Food and Nutrition, Chem. 482 .....	0	3	0
Animal Hygiene and Sanitation, A.H. 353 .....	0	0	3
Farm Engines, Agr. Eng. 212 .....	0	3	0
Electives .....	3	3	3
	18	19	19

## Senior Year

Dairy Manufacturing, A.H. 362 .....	0	1	0
Dairy Products Judging, A.H. 394 .....	0	0	1
Dairy Manufactures, A.H. 401, 402, 403 .....	3	3	3
Senior Seminar, A.H. 391, 392, 393 .....	1	1	1
General Bacteriology, Bot. 402 .....	0	4	0
Swine Production, A.H. 331 .....	3	0	0
Animal Nutrition II, A.H. 361 .....	3	0	0
Farm Meats I, A.H. 301 .....	0	3	0
Business Law, Econ. 307 .....	0	0	3
Herd Improvement, A.H. 413 .....	0	0	3
Food Products and Adulterants, Chem. 441 .....	3	0	0
Stock Farm Management, A.H. 433 .....	0	0	3
Agricultural Marketing, Agr. Econ. 411 .....	3	0	0
Farm Accounting, Agr. Econ. 313 .....	0	0	3
Pure Bred Livestock Production, A.H. 432 .....	0	3	0
Electives .....	3	3	3
	19	18	20

## BOTANY

Professor B. W. Wells, Head of the Department  
 Professors D. B. Anderson, S. G. Lehman, L. Shaw  
 Associate Professor I. V. Shunk  
 Assistant Professors M. F. Buell, L. A. Whitford

## Equipment and Facilities

**Location.**—The Department of Botany occupies the second floor of Winston Hall.

**Laboratories.**—The laboratories are all equipped with projection lanterns. A well-organized herbarium supports the work in systematic botany and dendrology.

**Greenhouses.**—Ample greenhouse facilities are available for work in physiology and pathology.

**Purpose.**—The Department emphasizes those phases of plant science which are foundational for the work in Agriculture and Forestry.



## CURRICULUM IN PLANT PATHOLOGY

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Business English, Eng. 211 .....	0	0	3
Public Speaking, Eng. 231 .....	0	3	0
Technical Writing II, Eng. 323 .....	0	0	3
Bacteriology, Bot. 402 .....	0	4	0
Diseases of Field Crops, Bot. 301 .....	3	0	0
Diseases of Fruit and Vegetable Crops, Bot. 303 .....	0	0	3
Plant Ecology, Bot. 441 .....	3	0	0
Economic Entomology, Zool. 213 .....	0	0	4
Plant Morphology, Bot. 411, 412 .....	3	3	0
Genetics, Zool. 411 .....	4	0	0
Electives .....	6	8	5
	19	18	18

## Senior Year

Plant Microtechnique, Bot. 451 .....	3	0	0
Principles of Plant Pathology, Bot. 491 .....	0	5	0
Pathogenic Fungi, Bot. 481, 2, 3 .....	3	3	3
Soil Microbiology, Bot. 443 .....	0	0	3
Plant Breeding, F.C. 463 .....	0	0	3
Microanalysis of Plant Tissue, Bot. 442 .....	0	3	0
Qualitative Analysis, Chem. 211 .....	4	0	0
Quantitative Analysis, Chem. 233 .....	0	0	4
Electives .....	8	7	5
	18	18	18

## CHEMISTRY

Professor A. J. Wilson, Head of the Department

Professors L. F. Williams, G. H. Satterfield

Associate Professors W. E. Jordan, M. F. Showalter

Assistant Professors H. L. Caveness, A. D. Jones, W. A. Reid, P. P. Sutton

Instructors R. C. White, R. H. Loeppert, J. W. Morgan, Elten Fisher

**Curriculum.**—The Department of Chemistry does not offer a Bachelor of Science degree in Chemistry. However, a student may register in the School of Agriculture with a major in Agricultural Chemistry. This curriculum affords extended courses of chemical training which will fit a graduate for positions such as those in State Experiment Stations, and in State and Federal laboratories for the inspection and control of fertilizers, feeds, foods, and other commodities, and as chemist in industrial plants.

**Instruction.**—Instruction in the Department of Chemistry embraces the courses of lectures and the related courses of laboratory work which are described in detail under the appropriate heading of each individual course included in the curricula of the Department.

## CURRICULUM IN AGRICULTURAL CHEMISTRY

For Freshman Year refer to page 61

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
General Botany, Bot. 101 .....	4	0	0
Economic Zoology, Zool. 102 .....	0	4	0
Animal Physiology, Zool. 202, or Plant Physiology, Bot. 221 .....	0	0	5
Qualitative Analysis, Chem. 211 .....	4	0	0
Quantitative Analysis, Chem. 212, 233 .....	0	4	4
Soils, Soils 201 .....	5	0	0
Bacteriology, Bot. 402 .....	0	4	0
Animal Nutrition I, A.H. 202 .....	0	0	3
General Economics, Econ. 201, 202 .....	3	3	0
Agricultural Economics, Agr. Econ. 202 .....	0	0	3
Military Science II, Mil. 201, 202, 203, or alternate .....	2	2	2
Sport Activities, P. E. 201, 202, 203 .....	1	1	1
	19	18	18

## Junior Year

Organic Chemistry, Chem. 421, 422, 423 .....	4	4	4
Physics for Textile Students, Phys. 111, 112, 113 .....	4	4	4
French or German .....	3	3	3
Elective Chemistry .....	3	3	3
Elective Agriculture .....	3	3	3
Electives .....	3	3	3
	20	20	20

## Senior Year

Chemistry Major .....	7	7	7
French or German .....	3	3	3
Electives .....	9	9	9
	19	19	19

## EXPERIMENTAL-STATISTICS

Professor Gertrude M. Cox, Head of the Department

Professor C. H. Hamilton

Associate Professors J. M. Clarkson, J. A. Rigney

Instructors R. J. Monroe, R. L. Anderson

Bureau of Agricultural Economics Resident Collaborators

W. A. Hendricks, A. L. Finkner

The Department of Experimental-Statistics does not offer a major leading to a degree. Its courses are designed to furnish students in other majors with the necessary training to plan and carry on research problems, as well as the proper assembling and interpretation of data.

## FORESTRY

Professor J. V. Hofmann, Director of the Division

Professor L. Wyman

Associate Professors W. D. Miller, G. K. Slocum, J. W. Chalfant

**Areas for Field Work.**—Some of the field work of the Department of Forestry is now carried on at the Camp Polk Prison Farm, near the State Fair Grounds, which has a thousand acres of timber land.

**The George Watts Hill Demonstration Forest**, near Durham, is a tract of 1,400 acres. It contains stands of short-leaf and loblolly pine, oaks, gum, tulip, dogwood, and all of these species in different associations. A rolling terrain, it serves admirably for the study of forest problems in the Piedmont Section.

**The MacLean Forest** is located in Hyde County, in the eastern part of the State, containing 1,554 acres; it is admirably adapted for demonstration in the Coastal Plain type of forest.

**The Hofmann Forest.**—A large tract of land in Jones and Onslow Counties, in the southeastern part of the State, consists of more than 84,000 acres and has the various types of timber found in this region. The large areas of virgin timber make a very complete laboratory for studying forest development and succession.

**Total Areas.**—In all, the Forestry Department has available about 87,000 acres on which to do field work, demonstration, and research. These areas include the various types found in North Carolina except those of the Mountain Region.

**The Arboretum** area of seventy acres near Raleigh is being developed to contain all of the tree species and associated shrubs that grow in this climatic condition. It contains swamp and upland which adapts it for this use. More than a hundred species have been planted in this area.

**The Wood Technology Laboratory** contains a representative collection of the more common woods and will be gradually extended.

**The Timber-Testing Laboratory**, in connection with the Engineering Experiment Station, contains the machines for its work.

Greenhouse space is available for special problems in forest research.

**Purposes of the Curriculum.**—The aims of the curriculum in Forestry are: (1) to train young men for work in the technical and applied fields of forestry on public or private forest land; (2) to give special training in fields of research; (3) to advance the knowledge of the entire profession.

**Forestry as a Profession.**—The profession of forestry is comparatively young in North Carolina. It began some thirty years ago and has made remarkable progress during its first quarter century of existence. The next decade promises more advancement and achievement than all the past, as the foundation has been laid; the building of the superstructure will depend upon the expertness of the builders. In the ranks of the builders are

included the United States Forest Service; State Forest Departments in a large number of States; corporations and lumber companies; individual land-owners; last but by no means least, the farm woodlands.

**Occupations.**—Students completing the Forestry course may look to the following fields of employment: United States Forest Service, the State Service, including not only North Carolina but especially the Southern States, and other State organizations; the lumber companies, timber-holding companies, corporations, and individuals. The forestry program in the State of North Carolina is very materially strengthened by the presence of the National Forests and the Appalachian Forest Experiment Station. These will be of direct aid in the study of forest-research problems, management problems and the organization and work of the National Forest Service.

**Forest Management** aims to make a forest property a permanent producing unit. All forestry is now being built on this basis.

**Forest Utilization** requires special courses dealing with the value and various uses of the products of the forest. During the third term of the senior year, field studies of woodworking industries, logging operations, paper and pulp mills, and problems in forest management take up most of the time.

**Silviculture** deals with the problems of producing a forest, such as selection of species, methods of reproduction, cutting systems. The work is becoming increasingly important as our virgin timber supply is depleted.

**Research in Forestry** is being recognized as important by all agencies in the fields of forestry. Men trained in research methods are needed in the Government Experiment Stations, State Experiment Stations, and private laboratories.

**Graduation.**—A minimum of 236 term credits with at least 236 honor points are required for graduation in Forestry.

**A Field Trip** through the Southeastern and the Gulf States is required for the senior class to study Applied Forestry under field and factory conditions. Local field trips are also required of other classes. A nominal fee is charged to cover the expense of these trips.

**Summer Instruction in Forestry.**—The regular summer instruction in forestry for sophomores is given during the ten weeks immediately following the Commencement.

The expenses for the entire period are as follows:

Registration fee .....	\$ 5.00
For each credit scheduled .....	3.00
Room and board (estimated) .....	50.00
Bus fee .....	22.00
Camp fee .....	5.00

The courses listed below for summer camp are required and carry the regular college credit as indicated. The work is carried on entirely in the field and the class is responsible for its own program of camp routine. The

students furnish their own board and any facilities other than the beds and housing. The registration in these courses is restricted to regularly enrolled students, unless a student is admitted as a special student under the same conditions that a special student would be allowed to take work in the regular courses.

## CURRICULUM IN FORESTRY

### Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Drawing, C.E. 101, 102, 103 .....	1	1	1
Botany, General and Systematic Bot. 101, 102, 203 .....	4	4	3
Mathematical Analysis, Math. 111, 112, 113 .....	4	4	4
Composition, Eng. 101, 102, 103 .....	3	3	3
General and Economic Zoology, Zool. 101, 102 .....	4	4	0
Economic Entomology, Zool. 213 .....	0	0	4
Elementary Forestry, For. 101, 102, 103 .....	1	1	1
Military Science I, Mil. 101, 102, 103, or Human Relations, Soc. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103 .....	1	1	1
	<u>20</u>	<u>20</u>	<u>19</u>

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### Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Introduction to Economics, Econ. 205 .....	3	0	0
Land Economics, Agr. Econ. 212 .....	0	3	0
Plant Physiology, Bot. 221 .....	5	0	0
Dendrology, Bot. 211, 213 .....	3	0	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Wood Technology, For. 202 .....	0	3	0
Physical Geology, Geol. 120 .....	0	4	0
Surveying, Theoretical, C.E. 221, 222 .....	0	3	3
Field Surveying, C.E. 225 .....	0	1	0
Topographical Drawing, C.E. 224 .....	0	0	1
Introduction to Psychology, Psychol. 200 .....	0	0	3
Military Science II, Mil. 201, 202, 203, or World History, Hist. 104 .....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
Introduction Sociology, Soc. 202 .....	0	0	3
	<u>18</u>	<u>21</u>	<u>20</u>

### Summer Camp

Surveying and Mapping, C.E. s300 .....	0	0	3
Dendrology, For. s214 .....	0	0	3
Mensuration, For. s304 .....	0	0	3
Silviculture, For. s204 .....	0	0	3
	<u>—</u>	<u>—</u>	<u>12</u>

### Junior Year

Forest Protection and Improvement, For. 342 .....	0	3	0
Nursery Practice, For. 313 .....	0	0	1
Soils, Soils 201 .....	0	0	5
Mensuration I, II, For. 402, 403 .....	3	3	0
Silviculture I, II, For. 311, 312 .....	3	3	0
English or Modern Language .....	0	3	3
Forest Entomology, Zool. 302 .....	0	3	0
Plant Ecology, Bot. 441 .....	3	0	0
Meteorology, Phys. 322 .....	0	3	0
Forest Finance, For. 442 .....	3	0	0
Survey of Statistical Methods, Econ. 408 .....	3	0	0
Elective in Social Science Group .....	0	0	6
Electives .....	3	3	6
	<u>18</u>	<u>21</u>	<u>21</u>

## Senior Year

Loggings, For. 421 .....	3	0	0
Diseases of Forest Trees, Bot. 311 .....	3	0	0
Silviculture III, IV, For. 411, 412 .....	3	3	0
Forest Management, For. 431, 432 .....	3	3	0
Seminar, For. 452 .....	0	2	0
Forest Products, For. 321 .....	3	0	0
Forest Utilization, For. 323 .....	0	0	2
Timber Appraisal, For. 443 .....	0	0	2
English or Modern Language .....	0	3	0
Senior Field Trip, For. 453 .....	0	0	3
Electives .....	3	6	5
	<hr/> 18	<hr/> 17	<hr/> 12

## HORTICULTURE

Professor M. E. Gardner, Head of the Department

Associate Professors G. O. Randall, Robert Schmidt, J. G. Weaver

**Equipment.**—The Department of Horticulture is well prepared in classrooms and in laboratory and field equipment to offer instruction in its several important and diverse fields.

**Pomology and Small-Fruit Culture.**—The College orchards and vineyards, the laboratories, a nursery plot, and other facilities are available to treat every phase of fruit growing from the selection and propagation of varieties to the details of orchard management.

**Olericulture and Floriculture.**—Four modern greenhouses, forming an important part of the equipment of the Department, are used primarily for experimental and instructional work in these two important and growing fields of horticulture. Potting rooms, propagation benches, and other more specialized equipment are used for both undergraduate and graduate instruction. Land and equipment to demonstrate and study details of commercial olericulture are convenient to the greenhouses.

**Special Study and Research.**—A Physiological and a Cytological Laboratory, calculating machines, library, greenhouses, and land are available to graduate and undergraduate students to carry on special studies. Projects conducted by the Experiment Station Staff are also available for study and observation.

**Library.**—The Departmental library contains approximately twenty thousand technical and popular bulletins covering all phases of horticulture, and complete bound volumes of the Proceedings of the American Society for Horticultural Science and many other periodicals pertaining to horticultural subjects.

## CURRICULUM IN FLORICULTURE

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Public Speaking, Eng. 231 .....	3	0	0
Business English, Eng. 211 .....	3	0	0
Bacteriology, Bot. 402 .....	0	4	0
Systematic Botany, Bot. 203 .....	0	0	3
Disease of Fruit and Vegetable Crops, Bot. 303 .....	0	0	3
Genetics, Zool. 411 .....	4	0	0
Economic Entomology, Zool. 218 .....	0	0	4
Plant Propagation, Hort. 301 .....	0	3	0
Soils of North Carolina, Soils 312 .....	0	3	0
Fertilizers, Soils 302 .....	0	3	0
Plant Materials: Woody Plants, L.A. 201, 202, 203 ....	2	2	2
Terracing and Drainage, Agr. Eng. 303 .....	0	0	3
Plant Materials: Herbaceous Plants, L.A. 303 .....	0	0	2
Electives .....	6	3	3
	18	18	20

## Senior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Plant Ecology, Bot. 441 .....	3	0	0
Technical Writing II, Eng. 323 .....	0	0	3
Commercial Floriculture, Hort. 341 .....	4	0	0
Horticultural Problems, Hort. 421, 422, 423 .....	2	2	2
Seminar, Hort. 431, 432, 433 .....	1	1	1
Experimental Horticulture, Hort. 412 .....	0	3	0
Agricultural Cooperation, Agr. Econ. 422 .....	0	3	0
Rural Sociology, Rural Soc. 302 .....	0	3	0
Agricultural Chemistry, Chem. 481 .....	3	0	0
Plant Breeding, F.C. 463 .....	0	0	3
Applied Psychology, Psychol. 337 .....	0	3	0
Landscape Gardening, L.A. 403 .....	0	0	3
Floral Design, Hort. 312 .....	0	1	0
Electives .....	5	3	6
	18	19	18

## CURRICULUM IN POMOLOGY

For Freshman and Sophomore Years refer to page 61.

## Junior Year

Public Speaking, Eng. 231 .....	3	0	0
Business English, Eng. 211 .....	0	3	0
Systematic Botany, Bot. 203 .....	0	0	3
Plant Ecology, Bot. 441 .....	3	0	0
Small Fruits and Grapes, Hort. 311 .....	3	0	0
Plant Propagation, Hort. 301 .....	0	3	0
Vegetable Gardening, Hort. 303 .....	0	0	4
Fertilizers, Soils 302 .....	0	3	0
Terracing and Drainage, Agr. Eng. 303 .....	0	0	3
Ornamental Plants, L.A. 402 .....	0	2	0
Landscape Gardening, L.A. 403 .....	0	0	3
Genetics, Zool. 411 .....	4	0	0
Economic Entomology, Zool. 213 .....	0	0	4
Applied Psychology, Psychol. 337 .....	0	3	0
Electives .....	3	6	3
	19	17	20

## Senior Year

Bacteriology, Bot. 402	0	4	0
Diseases of Fruit and Vegetable Crops, Bot. 303	0	0	3
Technical Writing, Eng. 323	0	0	3
Systematic Pomology, Hort. 401	2	0	0
Fruit Growing, Hort. 331	4	0	2
Horticultural Problems, Hort. 421, 422, 423	1	2	1
Seminar, Hort. 431, 432, 433	1	1	1
Experimental Horticulture, Hort. 412	0	3	0
Farm Management I, Agr. Econ. 303	0	0	3
Plant Breeding, F.C. 463	0	0	3
Farm Meats I, A.H. 301	0	3	0
Agricultural Chemistry, Chem. 481	3	0	0
Rural Sociology, Rur. Soc. 302	0	3	0
Poultry Elective	3	0	0
Electives	3	3	3
	18	19	18

## CURRICULUM IN VEGETABLE GARDENING

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Public Speaking, Eng. 231	3	0	0
Business English, Eng. 211	0	3	0
Plant Ecology, Bot. 441	3	0	0
Bacteriology, Bot. 402	0	4	0
Systematic Botany, Bot. 203	0	0	3
Diseases of Fruit and Vegetable Crops, Bot. 303	0	0	3
Fruit Growing, Hort. 331	4	0	0
Plant Propagation, Hort. 301	0	3	0
Vegetable Forcing, Hort. 302	0	3	0
Vegetable Gardening, Hort. 303	0	0	4
Fertilizers, Soils 302	0	3	0
Genetics, Zool. 411	4	0	0
Economic Entomology, Zool. 213	0	0	4
Terracing and Drainage, Agr. Eng. 303	0	0	3
Electives	6	3	3
	20	19	20

## Senior Year

Technical Writing II, 323	0	0	3
Systematic Olericulture, Hort. 411	2	0	0
Small Fruits and Grapes, Hort. 311	3	0	0
Horticultural Problems, Hort. 421, 422, 423	2	2	2
Seminar, Hort. 431, 432, 433	1	1	1
Experimental Horticulture, Hort. 412	0	3	0
Home Floriculture, Hort. 313	0	0	3
Agricultural Chemistry, Chem. 481	3	0	0
Plant Breeding, F.C. 463	0	0	3
Ornamental Plants, L.A. 402	0	2	0
Landscape Gardening, L.A. 403	0	0	3
Agriculture Cooperation, Agr. Econ. 422	0	3	0
Dairying, A. H. 341	3	0	0
Soils of North Carolina, Soils 312	0	3	0
Rural Sociology, Rur. Soc. 302	0	3	0
Electives	3	3	3
	20	20	18



## LANDSCAPE ARCHITECTURE

Professor J. P. Pillsbury, Head of the Division  
Associate Professors G. O. Randall, J. G. Weaver

A comparative study of Landscape Architecture with architecture, the oldest art of design, will disclose the fact that distinct parallelism exists between these two fields of human endeavor. Not only in the character and extent of the training required in each case is this shown, but also in the division of work which takes place, and in the relations existing among those responsible for various parts of the work in the practice of these two closely associated professional fields.

Training in Landscape Architecture is a composite derived from the fine arts, certain branches of engineering, and ornamental horticulture. Properly, it is dominated by the principles of design, and therefore may be correctly classified as a fine art. Its province is the design of landscapes, the preparation of plans and specifications for them, and supervision during construction.

The Curriculum in Landscape Architecture is strictly undergraduate. Its purpose is to provide a broad and thorough foundation for the additional postgraduate training which the profession requires of those desiring to enter its ranks. It also presents an open door to the professional fields of city or regional planning as the student may elect when undertaking graduate work. The soundness of the curriculum here presented is attested not only by the fact that at no time has the demand for the services of its graduates been fully satisfied, but also by the successes of those who have pursued graduate training and attained to full rank in the professional field of Landscape Design.

Training in Landscape Construction is similar to that in Landscape Architecture, but with emphasis upon materials and methods of construction employed in engineering and ornamental horticulture.

Training in Landscape Gardening is essentially ornamental horticulture. In neither case is graduate work required, since their provinces will not include the design of landscape, but only the execution of plans under supervision in the one case, and the maintenance of the constructed landscape in the other. Students electing either of these two lines of study will, during their first two years, pursue the Basic Curriculum in General Agriculture, with two or three substitutions from other curricula, as indicated.

General Equipment and Special Facilities for instruction are ample in the combined resources of Civil and Architectural Engineering, Horticulture, and Landscape Architecture.

Plant Materials in extensive collections on the College grounds and at various points elsewhere within a short distance, furnish an ample supply of all kinds for both study and use. In addition, several notable collections are available for occasional visits and study.

The Material for Landscape Design and Construction available on College grounds, private properties, and numerous public and semipublic areas and institutions in and about Raleigh, provide a wide range of subjects for study and practice. The City of Raleigh itself is a most interesting city-planning study, since it is one of the very few existing examples of a capital city which was planned in advance of its building.

## CURRICULUM IN LANDSCAPE ARCHITECTURE

### Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Trigonometry, Analytical Geometry, Math. 101, 102, 103	6	6	6
Composition, Eng. 101, 102, 103	2	2	3
Botany, General and Systematic, Bot. 101, 102, 203	4	4	3
Engineering Drawing II, and Descriptive Geometry, M.E. 105, 106, 107	3	3	3
Arboriculture, L.A. 101, 102, 103	1	1	1
Drawing, C.E. 101, 102, 103	1	1	1
Military Science I, Mil. 101, 102, 103, or Human Relations, Soc. 101, 102, 103	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103	1	1	1
	<u>21</u>	<u>21</u>	<u>20</u>

### Sophomore Year

Business English and Public Speaking, Eng. 211, 231	3	0	3
Plant Physiology, Bot. 221	0	0	5
Pencil Sketching, Arch. 100	3	0	0
Physical Geology, Geol. 120	0	4	0
Introduction to Economics, Econ. 205	0	3	0
Introduction to Psychology, Psychol. 200	3	0	0
Introduction to Architecture, Arch. 201	3	0	0
Elements of Architecture, Arch. 202, 203	0	2	3
Surveying, Theoretical, C.E. 221, 222	3	2	0
Field Surveying, C.E. 225, 227	1	0	1
Plant Materials: Woody Plants, L.A. 201, 202, 203	2	2	2
Theory of Landscape Design, L.A. 212, 213	0	3	3
Military Science II, Mil. 201, 202, 203, or World History, Hist. 104	2	2	2
Sport Activities, P.E. 201, 202, 203	1	1	1
	<u>21</u>	<u>21</u>	<u>20</u>

Surveying, C.E. §310, concurrent with Summer School, 3 credits, or  
Surveying, C.E. §310, a, b, c, Junior Year, 3 credits.

### Junior Year

Plant Materials: Herbaceous Plants, L.A. 303	0	0	2
Plant Ecology, Bot. 441	3	0	0
History of Landscape Design, L.A. 311, 312	3	3	0
Landscape Design I, L.A. 321, 322, 323	4	4	4
Technical Writing, Eng. 321	0	0	3
Shade and Shadows, Arch. 205	2	0	0
Freehand Drawing I, Pen and Pencil Drawing, Arch. 102	0	2	0
Freehand Drawing II, Water Color, Arch. 101	2	0	0
Freehand Drawing III, Charcoal, Arch. 103	0	0	2
Surveying, C.E. §310 a, b, c	1	1	1
Economic Zoology and Entomology, Zool. 102, 213	0	4	4
History of Architecture, Arch. 321, 322	3	3	0
*Electives	3	3	3
	<u>21</u>	<u>20</u>	<u>19</u>

\* Elective credit must include 12 credits in Social Science.

## Senior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Planting Design, L.A. 411, 412, 413 .....	3	3	3
Landscape Design II, L.A. 421, 422, 423 .....	4	4	4
City Planning, L.A. 432 .....	0	3	0
Landscape Construction, L.A. 451, 452, 453 .....	2	2	2
Perspective Drawing, Arch. 206 .....	1	0	0
Accounting for Engineers, Econ. 212 .....	3	0	0
Appreciation of Fine Arts, Arch. 111, 112, 113 .....	3	3	3
Business Law, Econ. 307 .....	0	0	3
*Electives .....	3	3	3
	19	18	18

## POULTRY SCIENCE

Professor R. H. Dearstyne, Head of the Department

Assistant Professors N. W. Williams, H. C. Gauger, R. E. Greaves; Instructor D. W. Gregory.

Research Coöperators: Zoölogy Department, Associate Professors  
C. H. Bostian, R. Harkema

**Laboratories:** The Poultry Department is housed on the second floor of Ricks Hall. It embraces the Disease Diagnostic, the Anatomy-Hematology, and the Disease Research Laboratories, the Incubator Room, and two Live Bird Laboratories. The laboratories are well equipped for teaching and research.

**The Seminar Room:** Affording access to technical and to popular publications, to preserved pathological specimens, is open to the students at all times.

**Purpose and Scope:** The Poultry Department, as a major division of the School of Agriculture and Forestry, serves North Carolina through teaching, research, and extension. Its research personnel embraces the field of avian genetics, parasitology, sero-bacteriology, histology, pathology and hematology. It has two poultry farms (chickens and turkeys) near the campus and two Experiment Station farms in the eastern and the western parts of the state. The staff devotes its full time to poultry problems of the student, the poultryman and the industry. It serves a chicken and turkey farm industry of nearly 10,000,000 birds in North Carolina valued at approximately \$30,000,000. It coöperates with the commercial concerns allied with poultry.

**Central Poultry Plant:** Consists of forty buildings located on seventeen acres. Six laying houses and sixteen mating pens house approximately 250 breeders and 1,500 layers. All layers of three breeds of chickens are pedigreed and trap-nested. About 4,000 chicks are produced each year, all of these being pedigreed. An 18,000-capacity incubator is used for teaching commercial incubation.

**Central Turkey Plant:** Consists of five new buildings located on twenty-five acres. One laying house and six mating pens house approximately 250 large bronze turkeys, all pedigreed and trap-nested. One 1,500-capacity incubator is used.

These two Plants provide abundant material for teaching and demonstrating principles of poultry management, breeding, judging and sanitation.

**Disease Diagnostic Laboratory:** Serves directly and indirectly the poultrymen of the State. Approximately 25,000 birds have been autopsied since 1923; 1,500 to 2,000 are now autopsied annually. One thousand or more poultrymen are reached each year by correspondence and 250 receive personal attention in the laboratory. The birds received serve as excellent material for teaching, for laboratory material in the courses in anatomy and poultry diseases, and for investigational work in avian bacteriology, sero-bacteriology, anatomy, histology, pathology, hematology and parasitology.

**Curriculum:** Is designed to broaden and to balance the training of undergraduate and graduate students in poultry husbandry. Emphasis is placed on those phases of biology, production, management, and sanitation which will enable the student to enter the fields of plant management, extension, or graduate research.

**Research:** A substantial research program is pursued in genetics, sero-bacteriology, histology, pathology, hematology and parasitology.

## CURRICULUM IN POULTRY SCIENCE

For Freshman and Sophomore Years refer to page 61.

### Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English Elective .....	0	3	0
Technical Writing II, Eng. 323 .....	0	0	3
Public Speaking, Eng. 231 .....	0	0	3
Poultry Anatomy, Poul. 311, 312 .....	3	3	0
Poultry Judging, Poul. 301 .....	4	0	0
Poultry Nutrition, Poul. 333 .....	0	0	4
Preparation and Grading of Poultry Products, Poul. 332 .....	0	3	0
Incubation and Brooding, Poul. 303 .....	0	0	3
Bacteriology, Bot. 402 .....	0	4	0
Genetics, Zool. 411 .....	4	0	0
Vertebrate Embryology, Zool. 461 .....	5	0	0
Cereal Crops, F.C. 302 .....	0	3	0
Farm Management I, Agr. Econ. 303 .....	0	0	3
Electives .....	3	3	3
	19	19	19

### Senior Year

Poultry Diseases, Poul. 401, 402 .....	4	4	0
Sero-Diagnosis in Poultry Diseases, Poul. 403 .....	0	0	3
Commercial Plant Management, Poul. 412 .....	0	3	0
Selecting and Mating Poultry, Poul. 413 .....	0	0	3
Senior Seminar, Poul. 423 .....	0	0	3
Swine Production, A.H. 331 .....	3	0	0
Dairy Cattle and Milk Production, A.H. 321 .....	3	0	0
Fruit Growing, Hort. 331 .....	4	0	0
Turkey Production, Poul. 342 .....	0	3	0
Rural Sociology, Rur. Soc. 302 .....	0	3	0
Agr. Marketing, Agr. Econ. 411 .....	3	0	0
Terracing and Drainage, Agr. Eng. 303 .....	0	0	3
Chemistry of Vitamins, Chem. 462 .....	0	3	0
Electives .....	3	3	6
	20	19	18

## RURAL SOCIOLOGY

Professor C. Horace Hamilton, Head of the Department

Professors G. W. Forster, Sanford Winston

Assistant Professors Selz C. Mayo, L. Walter Seegers, William McGehee

**Objectives.**—The principal objectives of this department are: (1) to give all students an appreciation of the human and social values in agriculture and rural life; (2) to give the future farmer and rural citizens an understanding of the social problems of the rural community; (3) to train rural leaders in methods of group organization and social control; (4) to train a few exceptional young men in rural sociological research and extension methods.

**Relation to Other Departments.**—The Department of Rural Sociology is closely related to and dependent upon other Social Science Departments in the College and in the Consolidated University. Students specializing in rural sociology will be expected to take courses in such departments as: Sociology, Psychology, Statistics, Agricultural Economics, History, and Political Science. The Department of Rural Sociology functions also in a service capacity to Agricultural Departments. Students taking courses in technical agriculture may take one or more courses in Rural Sociology as an elective Social Science.

**Laboratory and Research Facilities.**—The Department of Rural Sociology is constantly engaged in statistical and sociological studies of rural population, rural standards of living, rural communities, and related problems. Funds, laboratory equipment and other facilities for this work are provided by the Agricultural Experiment Station and are available for the use of advanced students specializing in the field of Rural Sociology.

In a broader sense, the entire State is a laboratory for the study of rural social problems. Field trips and extended surveys may be carried out by advanced students during the summer months.

**New Opportunities.** The field of rural social work offers new opportunities for agricultural graduates who have specialized in rural sociology. There is a great need now for men particularly, to fill administrative positions in all kinds of social security and welfare organizations, public and private. The rural sociology curriculum is designed to prepare agricultural college graduates for advanced professional training in social work and administration.

## CURRICULA IN RURAL SOCIOLOGY

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English (to be selected) . . . . .	3	3	3
General Sociology, Soc. 202, 203 . . . . .	3	3	0
Rural Sociology, Rur. Soc. 302 . . . . .	0	0	3
Introduction to Psychology, Psy. 200 . . . . .	3	0	0
Psychology of Personality, Psy. 291 . . . . .	0	3	0
History of American Agriculture, Hist. 319 . . . . .	0	0	3
American Political Parties, Pol. Sc. 203 or American Gov't. Pol. Sc. 200 . . . . .	3	0	0
State Government and Administration, Pol. Sc. 201 . . . . .	0	3	0
Electives . . . . .	6	6	9
	18	18	18

## Senior Year

The American Family . . . . .	0	3	0
Rural Leadership, Rur. Soc. 401 . . . . .	3	0	0
Rural Poverty and Relief, Rur. Soc. 432 . . . . .	0	3	0
Community Organization, Rur. Soc. 413 . . . . .	0	0	3
Rural Population Problems, Rur. Soc. 411 . . . . .	3	0	0
Social Aspects of Land Tenure, Rur. Soc. 422 or Problems of Land Economics, Agr. Econ. 412 . . . . .	0	3	0
Farm Management I, Agr. Econ. 303 . . . . .	0	0	3
Agricultural Cooperation, Agr. Econ. 422 . . . . .	0	2	0
Agricultural Marketing, Agr. Econ. 411 . . . . .	3	0	0
Social Pathology, Soc. 401 . . . . .	0	0	3
Survey of Statistical Methods, Econ. 408 . . . . .	3	0	0
Experimental Statistics, Stat. 412 . . . . .	0	3	0
Statistical Analysis of Social Data, Stat. 451 . . . . .	0	0	3
Technical Agriculture . . . . .	3	3	3
Electives . . . . .	3	0	3
	18	18	18

## ZOOLOGY AND ENTOMOLOGY

Professor Z. P. Metcalf, Head of the Department

Professors T. B. Mitchell, B. B. Fulton, R. O. Stevens; Associate Professors C. H. Bostian, F. H. McCutcheon, R. Harkema; Assistant Professors C. F. Smith. Instructors W. M. Kulash, M. W. Wing.

**Teaching and Research.**—The space devoted to Zoölogy is equipped to present the various subjects and to carry on research in its own and related fields. The Entomology Laboratory has a large Insectary with the usual equipment, and has an especially large collection of breeding animals for research and instruction in the field.

**Beekeeping.**—The Beekeeping Laboratory is well provided with apparatus to illustrate all phases of beekeeping. A small apiary is maintained on the College grounds.

**Graduate Work.**—The Technique and Graduate Laboratories are especially well equipped for the teaching of graduate work. The Museum contains a synoptic collection illustrating most groups of animals.

**Curricula.**—The Department of Zoölogy offers curricula in Entomology and in Wildlife Conservation and Management set forth as follows.

## CURRICULUM IN ENTOMOLOGY

For Freshman and Sophomore Years refer to page 61.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Systematic Zoology, Zool. 421, 422, 423 .....	3	3	3
Genetics, Zool. 411 .....	4	0	0
Comparative Anatomy, Zool. 222, 223 .....	0	4	4
Modern Language .....	3	3	3
Systematic Botany, Bot. 203 .....	0	0	3
Physiological Chemistry, Chem. 451, 452 .....	3	3	0
Public Speaking, Eng. 231 .....	0	3	0
Technical Writing II, Eng. 323 .....	0	0	3
Electives .....	6	3	3
	19	19	19

## Senior Year

Vertebrate Embryology, Zool. 461 .....	5	0	0
Field Zoology, Zool. 433 .....	0	0	4
Applied Entomology, Zool. 401, 402, 403 .....	3	3	3
Modern Language .....	3	3	3
Beekeeping, Zool. 243 .....	0	0	3
Plant Ecology, Bot. 441 .....	3	0	0
Histology, Zool. 442 .....	0	3	0
Bacteriology, Bot. 402 .....	0	4	0
Electives .....	4	4	4
	18	17	17

## WILDLIFE CONSERVATION AND MANAGEMENT

**Principles.**—The Wildlife Management Curriculum is based on the following fundamental principles: (1) All forms of wild animal life must be considered in any extensive system of wildlife management; (2) the animal life of any given area is in close relationship to the vegetation existing in that area; (3) in favorable environment, the species of wildlife will normally produce a surplus, a part of which can be harvested each year in a manner similar to the harvesting of other crops.

**Conservative Approach.**—Since wildlife management is just getting under way in this country, it would not seem advisable to encourage too rapid expansion of this profession at the present time, although there is a distinct need for a moderate number of well-trained men to promote and supervise wildlife management in the many sections of the country.

**Positions.**—The curriculum is designed to furnish a technical and practical background for the following types of positions: (1) Wildlife-Management Technicians in State Game and Fish Departments; (2) Biologists in the United States Biological Survey, Forest Service, Soil Conservation Service, National Park Service, and other Federal Land-Use Departments; (3) Game Managers on private preserves or leased areas, State game refuges, and on other land areas which are being developed primarily for wildlife.

**Research.**—Because of the great need for research and experimental work in this field, the required courses in the curriculum are also designed to give the basic technique necessary to students who may desire to enter this phase of wildlife management. Several elective courses will be available for junior and senior students to enable them to specialize in some particular phase of the work.

**State Advantages.**—Unusual advantages are offered to competent students by the wide range of natural environments in the North Carolina Coastal Plain, Piedmont, and Mountain Regions. Further advantages are available by reason of close coöperation with the State Division of Game and Inland Fisheries, and the opportunity to observe developments in wildlife management on the following areas: Mount Mitchell Game Preserve, Sandhill Land-Use Project, Soil Conservation Service Projects, Mattamuskeet Water Fowl Preserve, The Nantahala and Pisgah National Forests, The Great Smoky Mountain National Park, and private preserves in the Piedmont and on the Coastal Plain.



## CURRICULUM IN WILDLIFE CONSERVATION AND MANAGEMENT

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Mathematical Analysis, Math. 111, 112 .....	0	4	4
General Zoology, Zool. 101 .....	4	0	0
Economic Zoology, Zool. 102 .....	0	4	0
Physical Geology, Geol. 120 .....	0	0	4
Economic History, Hist. 101, 102, 103 .....	3	3	3
Elementary Wildlife Management, Zool. 111 .....	1	0	0
Military Science I, Mil. 101, 102, 103, or alternate .....	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103 .....	1	1	1
	18	21	21

## Sophomore Year

Agricultural Physics, Phys. 115 .....	0	0	5
Botany, General and Systematic, Bot. 101, 102, 203 .....	4	4	3
Introduction to Organic Chemistry, Chem. 221 .....	0	0	4
Introduction to Economics, Econ. 205 .....	3	0	0
Land Economics, Agr. Econ. 212 .....	0	3	0
Public Speaking, Eng. 231 .....	3	0	0
Comparative Anatomy, Zool. 222, 223 .....	0	4	4
General Field Crops, F.C. 202 .....	0	3	0
Ornithology, Zool. 251, 252, 253 .....	2	2	2
Surveying, Theoretical, C.E. 221, 222 .....	3	3	0
Surveying, Field, C.E. 225 .....	1	0	0
Principles of Forestry, For. 111 .....	3	0	0
Military Science II, Mil. 201, 202, 203, or alternate .....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
	22	22	21

## Junior Year

Plant Propagation and Nursery Practice, Hort. 301 .....	3	0	0
Dendrology, Bot. 211, 213 .....	3	0	3
Plant Ecology, Bot. 441 .....	3	0	0
Field Zoology, Zool. 433 .....	0	0	4
General Bacteriology, Bot. 402 .....	0	4	0
Economic Entomology, Zool. 213 .....	0	0	4
Animal Physiology, Zool. 202 .....	0	5	0
Wildlife Conservation, Zool. 321, 322, 323 .....	3	3	3
Technical Writing II, Eng. 323 .....	0	0	3
Soils, Soils 201 .....	5	0	0
Electives .....	3	6	3
	20	18	20

## Senior Year

Aquatic Biology, Bot. 473 .....	0	0	2
Elective Social Science .....	3	0	0
Elective English .....	3	0	0
Wildlife Management, Zool. 451, 452, 453 .....	3	3	3
The Soils of North Carolina, Soils 312 .....	0	3	0
Advanced Animal Ecology, Zool. 462, 463 .....	0	3	3
Parasitology, Zool. 492, 493 .....	0	3	3
Electives .....	9	6	7
	18	18	18

## THE AGRICULTURAL EXPERIMENT STATION

L. D. Bayer, Director

**Establishment.**—The Agricultural Experiment Station was established in accordance with an Act of the General Assembly of 1877. Its progress has been enhanced by different Acts of Congress giving to the Station additional funds in 1887, 1906, 1925, and 1935. These are known as the Hatch, the Adams, the Purnell, and the Bankhead-Jones acts, respectively. The General Assembly has allocated to the Station annually certain funds from the general fund.

**Purpose.**—The purpose of the Agricultural Experiment Station is to study methods for economic production of the highest grades of livestock, poultry, and plants on the many soil types and varied conditions existing throughout the commonwealth; to study methods for the control of parasitic insects and organisms that cause serious economic losses of animals, poultry, and plants; to find and develop varieties of animals, poultry, and plants, new, and resistant to diseases and the changeable conditions prevailing in this State; and to perfect better marketing for all agricultural products.

**Work.**—The staff of the Agricultural Experiment Station conducts experiments throughout the State on areas owned by farmers, on six strategically located test farms, on farms rented for short periods, and in the greenhouses and laboratories of the College.

**Research.**—The agricultural research aims, through the discovery of new facts, to improve the well-being of farmers throughout the State; to strengthen the regulatory work of the State Department of Agriculture; to develop new and necessary facts for the teaching of sound agricultural principles by vocational agricultural instructors, agricultural extension agents, and agricultural instructors in the College.

**Experts.**—The Agricultural Experiment Station staff brings to the College many experts, whose teachings in many specialized fields of agriculture assure the maintenance of curricula of high standards. It contributes much to the advanced training of students who are destined to become the leaders, teachers, and investigators so necessary in the maintenance of agriculture on sound and economic planes.

**Publications.**—The Agricultural Experiment Station publishes many bulletins and scientific papers on results of research conducted by the staff. These are free and sent upon request of anyone in the State.

**Problems.**—The staff diagnoses and interprets many problems for the farmers of this State; holds council with farmers and others interested in the agricultural industry; discusses farming procedures over the radio, and writes many letters on the more specific problems of agriculture at the request of farmers, members of garden clubs, and of fertilizer, fungicide, and insecticide manufacturers. It takes part in many of the administrative functions of the College.

## COOPERATIVE AGRICULTURAL EXTENSION WORK

Dr. I. O. Schaub, Director

John W. Goodman, Assistant Director

Dr. Jane S. McKimmon, Assistant Director

Ruth Current, State Home Demonstration Agent

**Support.**—The Agricultural Extension Service of State College is conducted coöperatively with the United States Department of Agriculture and the one hundred counties of the State. The work is supported by Federal funds derived from the Smith-Lever Act of 1914, the Capper-Ketcham Act of 1928, and the Bankhead-Jones Act of 1935, from State appropriations and county appropriations. The Federal and State appropriations are used to maintain an administrative and specialist staff, and to supplement salaries and travel expenses of county Extension agents.

**Purpose.**—The purpose of the Extension Service is to teach by demonstration. In carrying out this purpose, the College maintains a staff of trained specialists, a system of county agents and assistant agents, and a corps of home-demonstration agents. Instruction is given at group meetings by method and result demonstrations, and by the written word, by training leaders, and through organized effort with clubs of men, women, and young people. In all of these activities, the plan is to carry the rural people of North Carolina the latest and best information obtainable for building a more prosperous and satisfying life on the farm. The Extension Service holds a number of short courses, both on the College campus and elsewhere over the State, that the greatest number of rural leaders may be trained for building better homes and better farms, in the use of more efficient practices, thus creating a more satisfying way of life.

## THE SCHOOL OF ENGINEERING

Blake R. Van Leer,\* M.E., Dean of Engineering  
 L. L. Vaughan, M.E., Acting Dean of Engineering  
 William L. Mayer, M.S., Director of Registration

### Organization

The School of Engineering of the North Carolina State College of Agriculture and Engineering of the University of North Carolina is organized for purposes of administration into the following Departments:

### Line Departments

	Administrative Officer
Aeronautical Engineering .....	Dr. W. G. Friedrich
Architectural Engineering .....	Professor Ross Shumaker
Ceramic Engineering .....	Professor A. F. Greaves-Walker*
Chemical Engineering .....	Professor E. E. Randolph
Civil Engineering .....	Professor C. L. Mann
Electrical Engineering .....	Professor William Hand Browne, Jr.
General Engineering .....	Professor G. Wallace Smith
Geological Engineering .....	Professor J. L. Stuckey
Industrial Engineering .....	Professor H. B. Shaw
Mechanical Engineering .....	Professor R. B. Rice

### Service Departments

Engineering Experiment Station .....	Assoc. Prof. James Fontaine
Engineering Mechanics .....	Professor G. Wallace Smith
Mathematics .....	Professor H. A. Fisher
Physics .....	Professor C. M. Heck

The School of Engineering is organized to offer technical and professional engineering instruction on the higher levels, undergraduate and graduate, vocational and professional, to meet the needs of the people of North Carolina. It is also organized and equipped to conduct research in the fundamentals of Engineering, and it coöperates with the College Extension Division in offering extension courses in Engineering and its allied fields.

Effective July 1, 1938, the consolidation of Engineering instruction at the University Unit in Raleigh was consummated, and the instructional staff and laboratory facilities were enhanced by additions from the Engineering College formerly maintained by the Unit at Chapel Hill. This gives the School of Engineering in Raleigh the largest and most extensive engineering staff and equipment in this section of the country, and offers to the young men of North Carolina excellent facilities for securing an undergraduate education in Engineering.

\* On leave to U. S. Army.

The excellence of the instruction in the School of Engineering is attested by the fact that the Engineers' Council for Professional Development has accredited its curricula in Ceramic, Civil, Electrical, and Mechanical Engineering. It is the policy of the School of Engineering to have all of its curricula meet the standards of this nationally recognized accrediting agency. Engineering education requires extensive laboratory facilities, and as rapidly as funds are available all of its laboratories are being brought into shape to meet the highest standards attained in any technological institution of higher learning.

### Location and Facilities

Raleigh is a particularly favorable place for the study of Engineering. It is not only the State Capital where are located many State Departments of interest to engineers, such as the State Highway Commission, State Board of Health, State Geologist, Department of Conservation and Development, and important State institutions, but it is a rapidly growing city marked by modern developments in residential, commercial, and municipal construction. The local building and engineering go on the year round and afford excellent opportunities for observation and study. Raleigh is also so situated geographically that it is within easy distance for inspection trips to commercial chemical works, woodworking mills, railway shops, machine shops, airports, and manufacturing industries.

Raleigh is also a center from which electric power is distributed to a large section of the State. A transformer and meter substation adjoins the campus, and from it high-tension lines radiate in four directions. Hydro-electric and steam-electric plants on the Cape Fear River are within easy reach. The important systems of highways centering in Raleigh are exceptionally valuable for the observation and study of the construction, use, and maintenance of roads.

On the State College campus are six large buildings devoted exclusively to engineering instruction and research. These buildings contain much laboratory equipment which can be inspected at any time, but is best seen during the Engineers' Fair, which is held each year in March or April.

### Purposes of the School

The purposes of the School of Engineering are: to educate men for professional service in Aeronautical, Architectural, Ceramic, Chemical, Civil, Construction and Building Materials, Electrical, Geological, Industrial, Mechanical, Sanitary, and Transportation Engineering; to equip them to participate in commercial and public affairs; to develop their capacities for intelligent leadership; to aid in the development of commerce and industry through research and experimentation; to investigate natural resources and demonstrate their value to the people of the State; to cooperate with private companies, municipalities, public authorities, and commercial and industrial organizations through scientific research, thus increasing technical skill, improving the value of manufactured products, and eliminating waste.

### Occupations Open to Graduates

Those who graduate and receive a bachelor's degree in some specialized branch of engineering are equipped to assume at once the duties and responsibilities usually given Junior Engineers. The graduates of the School of Engineering are found in many technical fields, but most of them find employment in some one of the following: Aeronautical, Architectural and Structural Engineering; the Ceramic, the Chemical industries; and Private Professional Practice, Consulting Engineers; Hydro-electric Engineering, Electrical Manufacturing, Contracting, Central Steam-Electric Station Design and Construction, Telephone Service, Maintenance and Operation of Electrically-driven Mill Equipment, Lighting, Illumination, and Railway Signaling; Construction, Maintenance, and Operation of Steam and Electric Railways; the Design and Manufacture of Machinery, the Operation of Shops, and the Furniture Industry; Geological Engineering, Highway Engineering, Industrial Engineering, and the Management of Industries, Municipal Engineering, Sanitary Engineering; as City Managers, Public-Utility and Health-Service Officials; Sales Engineering, Research Engineering.

### Curricula

Besides a curriculum leading to the Bachelor of Science degree in General Engineering, the School of Engineering offers curricula which lead to the Bachelor's degree in the following specialized fields of Engineering:

- Aeronautical Engineering
- Architectural Engineering
- Architecture
- Ceramic Engineering
- Chemical Engineering
- Civil Engineering, with options in:
  - (a) Construction and Building Materials
  - (b) General Civil
  - (c) Sanitary
  - (d) Transportation
- Electrical Engineering, with options in:
  - (a) Power Generation and Distribution
  - (b) Electrical Communication
- Geological Engineering
- Industrial Engineering
- Mechanical Engineering, with options in:
  - (a) General
  - (b) Furniture Manufacturing
  - (c) Heating and Air Conditioning
  - (d) Metals

All of the curricula contain courses of general educational value which prepare students for the duties of citizenship in a democracy. However, the

curricula are primarily technical and practical, and designed to prepare young men for professional practice and for definite vocations as well as for leadership in the industrial advancement of the State.

The instruction is such as will foster the individual talent, imagination, and initiative of students, and instill in them ideals of accomplishment, service, and good citizenship, while assuring to them that scientific education and practical training which will prepare them for professional service and leadership in engineering and in industry. In this way the School of Engineering aids in the advancement of commerce and industry and furthers the development and economic utilization of the State's resources for the general welfare.

All the engineering curricula emphasizes thoroughness in the study of English and of the sciences—Mathematics, Physics, and Chemistry—with a thorough drill in the application of fundamental principles to engineering and industrial problems. Engineering is taught as a profession, and the students come to realize that it is both honorable and learned, and that it offers exceptional opportunities for service.

The several engineering curricula have a common freshman year and differ only slightly in the sophomore year, in which years the students study English, Mathematics, Drawing, Shopwork, Physics, and Chemistry. In the junior and senior years the students are directed definitely to the professional aims in carefully considered and well-balanced curricula.

**\* Summer Work.**—At least six weeks of summer employment, approved by the Head of the Department in which the student is enrolled, preferably in the summer following the junior year, is a specific requirement for graduation in Engineering.

The purpose of this is to have every student, before graduation, acquire the valuable experience of actual work with responsibility and pay in the field of his vocation. Departmental advisers will aid students in getting summer employment.

**\* Inspection Trips.**—In order to familiarize himself with the practice of his profession, each senior in Engineering is required as a part of his curriculum to take the departmental inspection trips. None will be excused except for grave reasons.

These inspection trips are arranged by the Head of the Department in which the student takes his major work. The cost of such trips vary from \$25.00 to \$60.00 per student, depending on the time and distance traveled.

**Degrees.**—Six different types of degrees may be secured through the School of Engineering. These are:

1. **Bachelor of Science (B.S.).** This degree can be obtained only through completion of the curriculum in General Engineering. This is a course of study founded upon the fundamentals of engineering with no specialized courses but with liberal allowances for electives in the cultural courses. It is an earned undergraduate degree and can be obtained by four years of undergraduate work.

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\* Waived for the duration of the war.

2. Bachelor of a Specialized Branch of Engineering, for example, B.C.E. Bachelor of Civil Engineering. This is an earned undergraduate degree which includes in the last two years some specialized courses in the particular branch of engineering in which the student is studying. This course is planned for four years of study; but due to the fact that it is very difficult, only the very best prepared and most diligent students can successfully complete it in four years.

3. Master of Science (M.S.) in a specialized branch of engineering. This is an earned graduate degree which can be obtained only after the Bachelor's degree. It requires at least one year of graduate work, a reading knowledge of at least one foreign language, and a thesis showing ability to pursue independent research. The core of graduate courses taken must emphasize a scientific objective. Further information concerning the requirements for this degree may be obtained by addressing Dr. Z. P. Metcalf, Director of Graduate Studies, State College, Raleigh, N. C.

4. Master of a Specialized Branch of Engineering, for example, (M.C.E.) Master of Civil Engineering. This is an earned graduate degree which can be obtained only after the specialized Bachelor's degree and requires one year of graduate work which emphasizes the technical and specialized professional engineering courses, and a thesis along professional engineering lines indicating ability to carry on independent professional investigations. For further information concerning this degree address Dr. Z. P. Metcalf, Director of Graduate Studies, State College, Raleigh, N. C.

5. The Professional degree, for example, Architectural Engineer, Ceramic Engineer, Chemical Engineer, Civil Engineer, Electrical Engineer, Mechanical Engineer.

This is an earned degree which is conferred only upon the graduates of some branch of the University of North Carolina, after five years of professional engineering practice in responsible charge of important work, the acceptance of a thesis on a subject related to the professional engineering practice in which the applicant is engaged, and the passing of an examination upon the candidate's professional experience. For further information concerning this degree address Dr. Z. P. Metcalf, Director of Graduate Studies, State College, Raleigh, N. C.

6. The Honorary Degree of Doctor of Engineering (D.Eng.). This degree is purely an honorary degree conferred upon men of extraordinarily high professional engineering attainments who are graduates of one of the branches of the University of North Carolina, or upon professional engineers who have rendered distinguished services to the State of North Carolina.

**Graduation.**—The requirements for graduation in a specialized branch of Engineering are the satisfactory completion of all the courses in one of the prescribed curricula (see tabulation of curricula on the pages following), a total of not less than 240 term credits, with not less than 240 honor points.

Of the minimum of 240 term credits required for graduation in Engineering, 117 are common to all curricula: 30 term credits in Mathematics, 18



in Language, 9 in Economics, 12 in Chemistry, 12 in Physics, 9 in Mechanics, 9 in Drawing and Descriptive Geometry, 12 in Military Training, and 6 in Hygiene and Physical Education.

Each of the curricula permits election of at least 18 term credits and contains not more than 72 special technical term credits.

**Graduates in Liberal Arts.**—An increasing number of graduates of liberal-arts colleges and universities are seeking an engineering degree. The policy of the School of Engineering is to allow as liberal an arrangement of courses as possible to suit the individual student's needs so that the degree in engineering may be obtained in the briefest time possible. However, the liberal-arts courses are distinctly different from those offered in an engineering school even when they have the same name and deal with the same subject matter. Students are therefore advised that the best economy of their time and money will be attained if they enroll at the beginning of their college careers as freshmen in an engineering curriculum.

A graduate with an A.B. degree will normally require two years additional work to obtain a Bachelor's degree in engineering.

A graduate with a B.S. degree may obtain a degree in engineering with from one to two years of additional study. A final decision in each case can be made only after an evaluation of the transcript of the student's record in the college from which he has received his degree.

**Short Courses; Institutes.**—The School of Engineering coöperates with the College Extension Division in offering short courses and institutes for adults and graduate engineers. These courses vary in length from one day to one week; each year the courses covered are different and vary according to the public demand. The faculty of the School of Engineering usually furnishes a large portion of the instruction offered in these courses, which in the past have been for Electrical Metermen, Gas Plant Operators, Waterworks Operators, Heating and Plumbing Contractors, Surveyors and Engineers. These short courses are usually held in Raleigh because the School of Engineering has unusual laboratory and classroom facilities which offer a decided advantage to those who desire to "brush up" on their specialty and bring themselves abreast of the times by attending such short courses. For information concerning any short course, address inquiry to Mr. Edward Ruggles, Director, Extension Division, State College, Raleigh.

## ENGINEERING WAR TRAINING

Since July, 1940, the School of Engineering has been coöperating with the Office of Education of the Federal Government in offering Engineering War Training courses on a college level, designed to train men and women as rapidly as possible to enter the war industries. The following courses have been offered: Aircraft Inspection; Chemical Testing and Inspection; Diesel Engineering; Engineering Drawing; Experimental Electronics; Instrument Men and Topographers; Materials Inspection and Testing; Production Engineering; Production Supervision; Spectroscopy in Industry; Architectural Drafting; Radio Communication; Power System Calculation; Indus-

trial Safety Engineering; Fabric Testing and Inspection; Electrical Distribution. Those who desire further information concerning these courses, please address their inquiries to: Edward W. Ruggles, Director, College Extension Division, N. C. State College, Raleigh, North Carolina. While college credit may not be earned by taking these courses, they do train men and women for specific tasks in which the salaries are attractive. Normally there is no cost to the student except room and board while attending. The average length of these courses is from ten to twelve weeks.

The School of Engineering has also coöperated during the past year with the U. S. Office of Education through the State Department of Public Instruction, Division of Vocational Education, to offer courses in such vocational fields as acetylene and electric welding, aircraft sheet metal, and machine shop practice.

**Admission: Advanced Standing.**—Regulations for admission and advanced standing are stated under Information for Applicants.

### SERVICE DEPARTMENTS

An explanation of the purposes, and a listing of the personnel engaged in the five Service Departments in the School of Engineering follow.

### ENGINEERING MECHANICS

Professor G. Wallace Smith, Head of the Department

Associate Professor N. W. Conner; Assistant Professors C. E. Feltner,\*  
C. N. Gaylord

Instructors J. T. Massey,\* J. N. Farlow

The Department of Engineering Mechanics, which is housed in the Civil Engineering Building, teaches and administers the courses in theoretical and applied mechanics, strength of materials, and fluid mechanics. These courses have been grouped under an independent Department, which is the custom in most large engineering schools, for two reasons: first, to economize by preventing duplications and overlapping; second, because the mechanics courses are basic, required courses in all the engineering curricula, and here all engineering students meet on an equal footing. The best and most uniform results are thus obtained when such courses are taught in a Department completely separated from the bias of any particular type of specialization.

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\* On leave to U. S. Army.

### FLIGHT TRAINING—FLYING

In coöperation with the Civil Aeronautics Administration, the School of Engineering through the Department of Aeronautical Engineering has been offering to young men between the ages of 18 and 26 an opportunity to become licensed pilots.

In the past four years about 300 primary and 100 secondary trainees have completed this flight training course; many of whom have joined the Army or Navy Air Corps with advanced standing.

It is necessary that all flying students attend the ground school being offered. Navigation, Meteorology, and the Civil Air Regulations are subjects which must be mastered before the student may obtain a private flying license. Approximately two hours of ground instruction to every hour in the air is required. The 35 to 45 hours of flying is divided into stages so that about half of the time is dual instruction while the other half is solo practice.

Those students who successfully complete the C.A.A. War Training Service and receive a Private Pilot's Certificate may apply for advanced instruction. The ground instruction required for the advanced course includes Navigation, Meteorology, Parachutes, Aerodynamics, Aircraft Engines, Instruments and Radio. Forty to fifty hours of advanced flight instruction are given in high-powered aircraft. In the advanced course, approximately three hours of ground instruction to every hour in the air is required.

In the interest of the war effort, this Flight Training Program for college students has been substituted for the duration by an accelerated full time training, which is repeated every eight weeks and is under control of the Army and Navy. It is expected that the experience and facilities acquired will be made available at the termination of the war for the resumption of flight training of college students.

### THE DEPARTMENT OF MATHEMATICS

Professor H. A. Fisher, Head of the Department

Professors H. P. Williams, C. G. Mumford; Associate Professors J. M. Clarkson, J. W. Cell, R. C. Bullock, J. Levine,\* L. S. Winton; Assistant Professors H. V. Park, H. M. Nahikian;\* Instructors A. Gelbart,\*\* W. P. Seagraves, Robert Hooke, Chas. F. Strobel, H. C. Cooke, E. Billman, V. R. Brantley, H. S. Kieval, W. F. Shealy, C. E. Thompson, J. W. Wray.

Mathematics is one of the basic sciences in Engineering. At State College the large and competent Mathematics Department not only teaches the subject as a science but gives also a large amount of drill and practice to the students so that, upon completion of the courses, the students not only know the subject matter but are skilled and rapid in its use when applied to the problems of technology.

\*\* On leave.

\* On military leave.

## THE PHYSICS DEPARTMENT

Professor C. M. Heck, Head of the Department

Professor J. B. Derieux; Associate Professors J. S. Meares, F. W. Lancaster; Assistant Professors R. F. Stainback,\* G. W. Bartlett\*; Instructors J. I. Hopkins, W. L. Parker, G. W. Charles, R. G. Fowler, J. T. Lynn.

Physics is another of the basic sciences upon which Engineering and Agriculture are founded.

**Facilities.**—The Department of Physics occupies the northern half of Daniels Hall—three floors, with six laboratories and six lecture rooms. The basement is devoted to research laboratories, shops, dark rooms, battery room, and power center. The two floors above comprise laboratories, lecture rooms, offices, and apparatus rooms.

**Equipment.**—The Department is equipped with laboratory apparatus in a sufficient number of sets to permit all students in a laboratory to work during the same period on the same experiment. All lectures are demonstrated with a large assortment of equipment and apparatus collected through many years.

On the roof of the building is located the astronomical observatory and the radio-research laboratory. The five-inch telescope is equatorially mounted and driven by clock work.

The Department is equipped for research and engineering students desirous of using Physics as a minor in their work for an advanced degree may use these facilities.

## THE ENGINEERING EXPERIMENT STATION

Associate Professor James Fontaine, Assistant Director

Room 112. Civil Engineering Building, State College Station, Raleigh.

**Establishment.**—The Engineering Experiment Station of State College was established in 1923, as provided by the General Assembly of that year. It is an integral part of the School of Engineering, and is engaged in an organized program of research consisting of individual projects carefully defined and approved, which are carried on by engineering teachers. The Station fits uniquely into the program of instruction, research, and extension of State College.

**Purpose.**—The efforts of the Engineering Experiment Station are directed along the following lines:

(a) The investigation of resources and processes, through experimentation and tests, with the object of opening and developing wider fields for the use of the natural resources of the State.

(b) Coöperation with industrial organizations in the solution of technical problems, which require such facilities and equipment as are available at State College.

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\* On military leave.

(c) The coördination of research undertaken by the Engineering School.

(d) The publication of the results of experimental and research projects made by the Engineering Experiment Station and the several Engineering Departments of State College.

**Publications.**—The Experiment Station has, since its organization, co-operated with various organizations and industries in the State in the investigation of problems peculiar to North Carolina. The results of such investigations have, from time to time, been issued in the form of Bulletins. The following is at present a complete list of the publications of the Station:

Bulletin No. 1. "County Roads: Organization, Construction and Maintenance," by Harry Tucker, James Fontaine, and L. D. Bell.

Bulletin No. 2. "Tests of Face and Common Brick Manufactured in North Carolina," by A. F. Greaves-Walker and James Fontaine.

Bulletin No. 3. "Poles from North Carolina Forests," by Wm. Hand Browne, Jr., and James Fontaine.

Bulletin No. 4. "Motor Vehicle Accidents in North Carolina," by Harry Tucker.

Bulletin No. 5. "Occurrence and Physical Properties of North Carolina Marble," by Jasper L. Stuckey and James Fontaine. Price twenty cents.

Bulletin No. 6. "The Occurrence, Properties, and Uses of the Commercial Clays and Shales of North Carolina," by A. F. Greaves-Walker, N. H. Stolte, and W. L. Fabianic. Price fifty cents.

Bulletin No. 7. "Highway Grades and Motor Vehicle Costs," by Howard Burton Shaw and James Fontaine. Price twenty cents.

Bulletin No. 8. "Financial Management for Highways," by Marc C. Leager. Price one dollar.

Bulletin No. 9. "Highway Accidents in North Carolina and Guides to Safety," by Harry Tucker. Price fifty cents.

Bulletin No. 10. "North Carolina Building Code," by the North Carolina Building Code Council. Price one dollar.

Bulletin No. 11. "The Production of an Insulating Brick Using North Carolina Shales," by A. F. Greaves-Walker, W. C. Cole, Jr., and S. C. Davis. Price twenty cents.

Bulletin No. 12. "The Development of Pyrophyllite Refractories and Refractory Cements," by A. F. Greaves-Walker, C. W. Owens, Jr., T. L. Hurst, and R. L. Stone. Price fifty cents.

Bulletin No. 13. "The Preparation of Concrete Using North Carolina Materials," by Harry Tucker and W. G. Geile.

Bulletin No. 14. "The Location and Distribution of the Ceramic Mineral Deposits of North Carolina," by A. F. Greaves-Walker and S. G. Riggs, Jr. Price twenty-five cents.

Bulletin No. 15. "A Study of Courses in Technical Writing," by A. M. Fountain. Price one dollar.

Bulletin No. 16. "The Production of Unfired and Fired Forsterite Refractories from North Carolina Dunites," by A. F. Greaves-Walker and R. L. Stone. Price fifty cents.

- Bulletin No. 17. "Papers Presented at School for Street Superintendents, 1939," compiled by Harry Tucker.
- Bulletin No. 18. "Net Revenue Method of Comparing Distribution Transformers," by R. R. Brown.
- Bulletin No. 19. "The Origin, Mineralogy and Distribution of the Refractory Clays of the United States," by A. F. Greaves-Walker.
- Bulletin No. 20. "Papers Presented at School for Street Superintendents, 1940," compiled by Harry Tucker.
- Bulletin No. 21. "Drafting Room Practices," by T. C. Brown and P. E. Moose. Price twenty-five cents.
- Bulletin No. 22. "The Development of an Unfired Pyrophyllite Refractory," by A. F. Greaves-Walker and J. J. Amero. Price fifty cents.
- Bulletin No. 23. "The Suitability of North Carolina Shales and Clays for Mortar Mixes," by A. F. Greaves-Walker and W. A. Lambertson. Price twenty-five cents.
- Bulletin No. 24. "The Development of Light Weight Concretes from North Carolina Vermiculites," by William A. Scholes, A. F. Greaves-Walker, E. R. Todd, and D. F. Cox. Price fifty cents.

**Current Activities.**—The Experiment Station is now assisting in the following investigations that are being conducted by the several Departments of the Engineering School:

1. In coöperation with the Department of Chemistry of State College and the Medical School of Duke University: A study of night blindness in relation to automobile accidents.
2. In coöperation with the United States Geological Survey: The geology of Wake County, North Carolina.
3. In coöperation with the North Carolina State Highway and Public Works Commission: Investigation of steel-beam bridges with concrete floors.
4. In coöperation with the North Carolina State Board of Health: The efficiency of small sewage-treatment plants.
5. In coöperation with the Rural Electrification Administration: The effects of varying voltages on single-phase motors.
6. In coöperation with the Testing Division of the North Carolina Department of Revenue: The testing of motor fuels.
7. The stabilization of dolomite by the addition of olivine for refractories purposes.
8. In coöperation with the United States Bureau of Mines: The development of forsterite refractories.
9. Production of an insulating refractory from pyrophyllite.
10. In coöperation with the City of Raleigh, North Carolina: An investigation of the design and capacity of gutter intakes.
11. In coöperation with the Carolina Power and Light Company: Annealing of copper conductors by fault currents.
12. A Photoelectric Integrator for Load-Temperature Studies.

## THE N. C. STATE COÖPERATIVE PLAN OF ENGINEERING EDUCATION

\*Frank F. Groseclose, Director; T. C. Brown, Acting Director

The N. C. State Coöperative Plan of Engineering Education was started at North Carolina State College in the spring of 1940. It offers candidates for engineering degrees the combination of practical experience in industry and theoretical instruction in the required technical courses. During the first year 40 students coöperated with 12 industries in three states.

The N. C. State Coöperative Plan divides the coöperative students in two sections. One section attends college the Fall and Spring terms each year, then works with a coöperating industry the Winter and Summer terms. The alternate section attends college the Winter and Summer terms and works in industry the Fall and Spring terms. For the average student this will mean one additional year or a total of five years for graduation in engineering. The student's participation in this five-year program is as follows: The full Freshman year is spent in residence at the college. The regular Sophomore and Junior years are divided into alternate periods of college attendance and work of three months duration each. The student spends his entire Senior year in residence at college.

During the Freshman year, students following the Coöperative Plan will pursue the same schedule of full time attendance in the Basic Division as students of the regular four-year curricula. The coöperative students normally take exactly the same academic work as non-coöperative students. Liberal substitutions may be allowed in preparing students for specific jobs in industry.

In order to provide for worthy persons now employed in industry, whose employers are willing to coöperate, arrangements are available which allow these men to enter as Freshmen in the Basic Division, provided, of course, they meet the entrance requirements of N. C. State College. For those in industry who have already completed some college work, a transcript of college credits must be submitted to the Registration Office for evaluation. Such persons would complete at State College only the necessary additional credits required for an engineering degree. Those already employed in industry may be recommended to the college by their employers as suitable persons for pursuing or continuing college grade work.

Only Freshmen who can meet the scholastic requirement of a better than "C" average are eligible for participation in the Coöperative Plan. The maintenance of this policy avoids college recommendation to the industry of a student who would have to be suspended on account of poor scholarship, with consequent interruption of his employment with industry.

Employment under the coöperative plan is not guaranteed, but every effort is made to place all worthy students whose scholarship, character, and abilities indicate that they will be successful in pursuing the coöperative plan.

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\* On leave to U. S. Army.

Women are becoming more and more in demand by various industries, and the coöperative plan offers them the advantages of a technical education combined with actual industrial experience.

Placement in industry is generally made by furnishing to the industry concerned a few applications of the students selected by the Director as most likely to fit the particular needs of the industry. In some cases the industries have authorized the Director to make assignment of students to them based on specification submitted by the particular industry.

College fees, under the coöperative plan, are the same as those listed in the catalog for other students, with the exception that payments are arranged on a three months basis rather than twice a year.

Applications for admittance to the coöperative plan may be made at any time, preferably before April 1 of the Freshman year.

Those interested should communicate directly with the Acting-Director, N. C. State Coöperative Plan of Engineering Education, Box 5518, State College Station, Raleigh, N. C.

## CURRICULA OFFERED IN THE SCHOOL OF ENGINEERING

Each of the following curricula is not only well balanced, but offers a liberal course of study in a technical and professional field. Each conforms to what is regarded by engineering educators as the best modern practice.

Also offered in the School of Engineering is a curriculum leading to the Bachelor of Science degree in Engineering (see page 114). This curriculum has no specialization and requires but 238 term credits with at least 238 honor points. It is recommended to those who desire a broad general training in the basic principles of Engineering but who do not have the time or desire to specialize in some particular branch.

## FRESHMAN YEAR of ALL CURRICULA in ENGINEERING

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Trigonometry, Analytical Geometry, Math. 101, 102, 103	6	6	6
Composition, Eng. 101, 102, 103	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103	4	4	4
Engineering Drawing II, M.E. 105, 106	3	3	0
Descriptive Geometry, M.E. 107	0	0	3
Military Science I, Mil. 101, 102, 103, or World History, Hist. 104	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

Summer requirement following the freshman year in Architectural, Ceramic, Electrical, General, and Mechanical Engineering: Surveying, C.E. s200, 3 credits.

## Citizenship Requirement for All Curricula in Engineering

In order that every graduate of the School of Engineering may have a working knowledge of the fundamentals of American Government, all students in the School of Engineering are required to take prior to the end of their sophomore year a citizenship test, and in the event a student fails to pass this comprehensive examination, he will be required to take



American Government (Political Science 200) 3 or 3 or 3. Students may elect to take the course in lieu of the examination, and students taking the course will be permitted to apply the credit earned in partial satisfaction of their social science electives. A student must pass the comprehensive examination or the course in American Government before he can graduate from the School of Engineering.

### AERONAUTICAL ENGINEERING

W. G. Friedrich, Acting Head of Department; Associate Professor L. R. Parkinson\*; Assistant Professor R. F. Rautenstrauch; Assistant Professor W. R. Mann, in Charge of C.A.A. War Training Service at Chapel Hill; Instructor R. W. Truitt, in Charge of C.A.A. War Training Service at Raleigh.

#### Building and Equipment—

The Department of Aeronautical Engineering has a new building centrally located on the campus. It contains the offices of the aeronautical engineering faculty and the aeronautical laboratory. The Aeronautical Engineering Department also operates the University-owned Horace Williams airport at Chapel Hill. This airport, one of the largest in the south and the finest college airport in the country is capable of handling aircraft of any size. The University owns and maintains a fleet of airplanes for the purpose of training prospective pilots for both military and commercial needs. Licensed personnel maintain the equipment in an airworthy condition.

The Aeronautical Laboratory provides for the testing of component parts of aircraft. The latest machines and instruments are available for use in this connection. A Luscombe monoplane of all metal construction, completely equipped with instruments, is used for purposes of study and flight testing.

#### Curriculum—

Since the trend of airplane design changes quite rapidly, no attempt is made to produce specialists in any phase of aeronautical engineering. The course of study is intended to give the student a well rounded knowledge of fundamentals. Upon graduation most students find positions in aircraft industry or the aviation services where they may receive further training of more specialized nature. Thus a student may prepare himself for any one of the many ground and flying positions available in the aviation industry today. In view of the present war requirements more time is being devoted to aircraft production subjects.

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\* On military leave.

## CURRICULUM IN AERONAUTICAL ENGINEERING

For the Freshman Year, refer to page 104.

Summer requirement following the freshman year: Surveying, C.E. s200, 3 credits.

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
† Business English, Pub. Speaking, Eng. 211, 231, and Elective English .....	3	3	3
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Mechanical Drawing, M.E. 211, 212, 213 .....	2	2	2
Shopwork, M.E. 121, 122, 123 .....	1	1	1
Engineering Mechanics, E.M. 311 .....	0	0	3
Metallurgy, M.E. 322, 323 .....	3	3	0
* Military Science, Mil. 201, 202, 203 .....	2	2	2
Physical Education, P.E. 201, 202, 203 .....	1	1	1
	<hr/> 20	<hr/> 20	<hr/> 20

## Junior Year

Engineering Mechanics, E.M. 312, 313 .....	3	3	0
Thermo., M.E. 307, 308, 309 .....	3	3	3
Thermo. Lab., M.E. 313, 314, 315 .....	1	1	1
Elem. Mechanism, M.E. 215, 216, 217 .....	1	1	1
General Aeronautics, Aero. E. 300 .....	0	3	0
Elem. Aeronautics, Aero. E. 310 .....	0	0	3
Materials of Construction, C.E. 321 .....	3	0	0
Str. of Materials, E.M. 321, 322 .....	0	3	3
Fluid Mechanics, E.M. 330 .....	0	0	3
Tech. Writing, Eng. 321 .....	0	0	3
Business Law, Econ. 307 .....	3	0	0
Elements of E.E., E.E. 320, 321 .....	3	3	0
**Electives .....	3	3	3
	<hr/> 20	<hr/> 20	<hr/> 20

## Senior Year

General Economics, Econ. 201, 202, 203 .....	3	3	3
Internal Comb. Engines, M.E. 421, 422, 423 .....	3	3	3
Airplane Design, Aero. E. 421, 422, 423 .....	3	3	3
Aerodynamics, Aero. E. 431, 432, 433 .....	3	3	3
Aero. Lab., Aero. E. 441, 442, 443 .....	1	1	1
Aircraft Engines, Aero. E. 451, 452 .....	0	3	3
Aircraft Manufacturing, Aero. E. 411, 412 .....	3	3	0
**Electives .....	3	3	3
	<hr/> 19	<hr/> 22	<hr/> 19

† Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

\* Or 6 credits in one or two of the following departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## ARCHITECTURE AND ARCHITECTURAL ENGINEERING

Professor Ross Shumaker, Head of Department

Associate Professor J. D. Paulson

Assistant Professors F. Carter Williams\*, W. L. Baumgarten,

James H. Grady

The courses in Architecture and Architectural Engineering have been arranged after careful study of the best curricula offered by the leading educational institutions in the United States. These studies and many years of practical experience on the part of the faculty—both in the profession and in teaching, enable this Department to offer two allied courses of merit, proved by the very high proportion of graduates of this Department who successfully follow the profession of architect.

The first three years of study in Architecture and in Architectural Engineering are very similar—so arranged that a student may transfer from one curriculum to the other until the end of the junior year—with a minimum loss of credits. After the third year, however, there is a wide divergence in the courses.

Architecture is one of the most valuable and constructive professions in modern civilization. While an art, it must be firmly rooted in science; and the greater the project, the more positively this is true. Consequently, a student who is ambitious to be a great architect must master the artistic scope of architecture and also such science as is pertinent. To compress such a course into four years would necessarily eliminate some essential studies or reduce the content of all. Therefore the curriculum in Architecture is presented as a five-year course of study.

Architectural Engineering is designed to prepare students for the pursuit of engineering as allied with architecture. Modern architecture has so many engineering aspects as in construction, fabrication and use of materials, provision of conveniences, that a student may well plan to specialize in some one of these fields. This four-year course provides a thorough training in the theoretical engineering of architecture and a sufficient knowledge of architecture as an art to enable the graduate to pursue any specialized branch he may select. Also it is possible for him to continue in the field of architecture and eventually obtain registration as a licensed architect.

Equipment.—The Department of Architecture and Architectural Engineering occupies the third floor of Daniels Hall, an excellent location providing adequate space in well-lighted and comfortable rooms. Large drawing rooms, library, lecture rooms, photographic dark room, and offices, overlooking the entire State College Campus, constitute an ideal physical layout for the Department. Drawing tables, stools, lockers, and essential furniture are all provided.

Alumni.—Graduates of this department have little difficulty in normal times in finding employment and experience such that in a few years they can obtain registration as licensed architects. Many graduates have been conspicuously successful, and it is worthy of note that a very large proportion remain in the State of North Carolina or adjacent territory.

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\* On military leave.

## CURRICULUM IN ARCHITECTURAL ENGINEERING

For the Freshman Year, refer to page 104.

Surveying, C.E. 200, 3 credits, is required in the summer immediately following the freshman year.

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
*Business English, Public Speaking, Eng. 211, 231, and Elective English .....	3	3	3
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Engineering Mechanics, E.M. 311, 312 .....	0	3	3
Elements of Architecture I, II, III, Arch. 201, 202, 203 ..	3	3	3
Shades and Shadows, Arch. 205 .....	2	0	0
Pencil Sketching, Arch. 100 .....	1	1	1
Perspective Drawing, Arch. 206 .....	1	0	0
Military Science II, Mil. 201, 202, 203 (or elective†) ....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
Sophomore Year .....	21	21	21

## Junior Year

Engineering Mechanics, E.M. 313 .....	3	0	0
Strength of Materials, E.M. 321, 322 .....	0	3	3
Materials Testing Laboratory, C.E. 322 .....	0	1	0
Materials of Construction, C.E. 321 .....	0	0	3
Sanitary and Mech. Equipment of Buildings, C.E. 365, 366 .....	3	3	0
General Economics, Econ. 201, 202, 203 .....	3	3	3
Freehand Drawing 1, 2, 3, Arch. 101, 102, 103 .....	2	2	2
Intermediate Design B-1, B-2, B-3, Arch. 301, 302, 303 .....	3	3	3
History of Architecture 1, 2, 3, Arch. 321, 322, 323 ....	3	3	3
**Electives .....	3	3	3
Junior Year .....	20		
Summer Requirements: Six Weeks Industrial Employment.		21	20

## Senior Year

Reinforced Concrete, C.E. 421, 422 .....	3	3	0
Graphic Statics, C.E. 423, 424, 425 .....	1	1	1
Theory of Structures, C.E. 431a, 432a .....	3	3	0
Photographic Practice, Arch. 304 .....	0	0	1
Specifications, Arch. 416 .....	0	0	3
Building Materials I, Arch. 409 .....	3	0	0
Electrical Equipment of Buildings, E.E. 343 .....	0	0	3
Business Law, Econ. 307 .....	3	0	0
Architectural Design, E-1, E-2, Arch. 351, 352 .....	3	3	0
Architectural Office Practice, Arch. 411, 412 .....	0	3	3
Architectural Estimates, Arch. 408 .....	0	0	2
Structural Design, C.E. 426, 427 .....	0	3	3
**Electives .....	3	3	3
Senior Year .....	19	19	19

Total credits required for completion of course: 241. Degree: Bachelor of Architectural Engineering.

All seniors will be required to go on the inspection trip as part of their curriculum.

\* Students who have been certified by the Department of English as proficient in English may substitute for the course listed French, M.L. 101.

† Or six credits in one or two of the following Departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## CURRICULUM IN ARCHITECTURE

## Freshman or First Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Mathematics 101, 102, 103 . . . . .	6	6	6
Composition, Eng. 101, 102, 103 . . . . .	3	3	3
French, or Modern Language, M.L. 101, 102, 201, or Equiv. . . . .	3	3	3
Pencil Sketching, Arch. 100 . . . . .	1	1	1
World History, Hist. 104 . . . . .	2	2	2
Architectural Drawing, Arch. 107 (or M.E. Equivalent) . . . . .	3	3	0
Descriptive Geometry, M.E. 107 . . . . .	0	0	3
Military Science I, Mil. 101, 102, 103 (or elective†) . . . . .	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103 . . . . .	1	1	1
Freshman or First Year . . . . .	21	21	21
Summer Requirements: Surveying, C.E. 200, 3 credits.			

## Sophomore or Second Year

Calculus I, II, III, Math. 201, 202, 303 . . . . .	4	4	4
Background for Modern Thought (or Elective) . . . . .	3	3	3
Physics for Engineers, Phys. 201, 202 . . . . .	4	4	0
Shades and Shadows, Arch. 205 . . . . .	2	0	0
Engineering Mechanics, E.M. 301, 302 . . . . .	0	3	3
Elements of Architecture I, II, III, Arch. 201, 202, 203 . . . . .	3	3	3
History of Sculpture and Mural Decoration, Arch. 325 . . . . .	0	0	2
Working Drawings, Arch. 305 . . . . .	0	0	2
Perspective Drawing, Arch. 206 . . . . .	1	0	0
Military Science II, Mil. 201, 202, 203 (or elective†) . . . . .	2	2	2
Sport Activities, P.E. 201, 202, 203 . . . . .	1	1	1
Sophomore or Second Year . . . . .	20	20	20

## Junior or Third Year

Business English, Pub. Speaking, Eng. 211, 231, and Elective English (or M.L.) . . . . .	3	3	3
Strength of Materials, E.M. 321, 322 . . . . .	0	3	3
Materials Testing Laboratory, C.E. 322 . . . . .	0	1	0
Materials of Construction, C.E. 321 . . . . .	3	0	0
Sanitary and Mech. Equip. of Buildings, C.E. 364 . . . . .	3	0	0
Freehand Drawing 1, 2, 3, Arch. 101, 102, 103 . . . . .	2	2	2
Architectural Office Practice, Arch. 411, 412 . . . . .	0	3	3
Intermediate Design B-1, B-2, B-3, Arch. 301, 302, 303 . . . . .	3	3	3
History of Architecture 1, 2, 3, Arch. 321, 322, 323 . . . . .	3	3	3
**Electives . . . . .	3	3	3
Junior or Third Year . . . . .	20	21	20
Summer Requirements: Six Weeks Industrial Employment.			

## Senior or Fourth Year

General Economics, Econ. 201, 202, 203 . . . . .	3	3	3
Reinforced Concrete, C.E. 421, 422 . . . . .	3	3	0
Graphic Statics, C.E. 423, 424, 425 . . . . .	1	1	1
Electrical Equipment of Buildings, E.E. 343 . . . . .	0	0	3
Architectural Design B-4, B-5, B-6, Arch. 353, 354, 355 . . . . .	6	6	6
History of Architecture 4, Arch. 421 . . . . .	0	3	0
Building Materials I, Arch. 409 . . . . .	3	0	0
Professional Practice, Arch. 414 . . . . .	0	0	1
Clay Modeling, Arch. 114 . . . . .	1	1	1
Photographic Practice, Arch. 304 . . . . .	0	0	1
**Electives . . . . .	3	3	3
Senior or Fourth Year . . . . .	20	20	19

† Or six credits in one or two of the following Departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## Professional or Fifth Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Business Law, Econ. 307 .....	3	0	0
Specifications, Arch. 416 .....	0	0	3
Theory of Structures, C.E. 431a, 432a .....	3	3	0
Architectural Design A-1, A-2, A-3, Arch. 401, 402, 403 .....	6	6	6
Freehand Drawing 4, 5, 6, Arch. 211, 212, 213 .....	3	3	3
Architectural Composition, Arch. 407 .....	2	0	0
City Planning, Arch. 415 .....	0	2	0
Architectural Estimates, Arch. 408 .....	0	0	2
**Electives .....	3	6	6
Fifth Year .....	20	20	20
Total Credits: 306. Completion of the course to be recognized by granting the degree of Bachelor of Architecture.			

## CERAMIC ENGINEERING

Professor A. F. Greaves-Walker\*, Head of the Department; Associate Professor R. L. Stone, Acting Head of the Department; Instructor C. M. Lambe, Jr.

The Department of Ceramic Engineering occupies its own building, which contains classrooms, a design room, a chemical laboratory, an equipment laboratory, and a kiln laboratory.

The Equipment Laboratory contains an adequate variety of machines for preparing and processing ceramic bodies of all kinds and making ceramic products on a laboratory scale. It also contains the necessary equipment for carrying on ceramic research, and the testing of materials and products.

The Kiln Laboratory contains twelve kilns and furnaces of different types, which provide for the firing or testing of all ceramic materials and products.

Ceramic Engineering includes those phases of engineering which have to do with the study of the nonmetallic, inorganic minerals, except fuels and ores as such, and the manufacture of products therefrom. The nonmetallic minerals compose over 90 per cent of the earth's surface, and the industries based on them rank above the automobile, and the iron and steel industries, in value of product. Principal among these products are those made of clay and associated minerals, such as building brick, hollow tile, sewer pipe, refractories, wall and floor tile, tableware, pottery, electrical porcelain, chemical and sanitary stoneware, flat glass, chemical and table glassware, enameled iron and steel, portland and hydraulic cements, and limes.

North Carolina has enormous deposits of shale, clay, kaolin, feldspar, sand, limestone, and other ceramic minerals, equal in quality to any others in the United States; with the introduction of modern processes and methods will produce in future quantities of ceramic products and adequately develop its ceramic industries.

\* On leave to the WPB.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

The demand for ceramic engineers has far exceeded the supply for a number of years past, there being fewer than 100 ceramic engineers graduated in the United States each year. It is with the idea of supplying this demand and developing the latent resources of North Carolina that a four-year curriculum in Ceramic Engineering, leading to the degree of Bachelor of Ceramic Engineering, is offered.

The instruction in Ceramic Engineering is enriched by the intensive investigation of ceramic resources and manufactures constantly under way in connection with the Engineering Experiment Station. Students will have the great advantage of these investigations along with other instruction.

Courses in advanced subjects for graduate students are offered in Advanced Refractories and Furnaces, Industrial Adaptability of Clays, Designing of Ceramic Equipment and Plants, Advanced Silicate Technology, Glass Technology, and Ceramic Research.

The curriculum in Ceramic Engineering, which has been accredited by the Engineers Council for Professional Development, contains fundamental courses, and courses in Ceramic, Geological, Civil, Electrical, and Mechanical Engineering, as well as in Economics, to provide for the general training in engineering with the particular study of Ceramic Engineering. The Ceramic Engineering courses consist of the theoretical and practical study of the mining, manufacturing, and testing of ceramic materials and products as well as the design of ceramic equipment and plants.

Graduates in Ceramic Engineering are employed in the ceramic industries as plant executives, research engineers, plant-control engineers, sales engineers, product-control engineers, plant designers and constructors, equipment manufacturers, consulting engineers, and ceramic chemists and technologists. Graduates of the Department at State College, which ranks fourth in registration in the United States, are successfully holding positions in all of these branches.

## CURRICULUM IN CERAMIC ENGINEERING

For the Freshman Year, refer to page 104.

Surveying, C.E. 200, 3 credits, is required in the summer immediately following the freshman year.

### Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Qualitative Analysis, Chem. 211 .....	4	0	0
Quantitative Analysis, Chem. 212 .....	0	4	0
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Engineering Geology, Geol. 220 .....	3	0	0
Mineralogy, Geol. 230 .....	0	0	3
*Business English, Public Speaking, Eng. 211, 231, and Elective English .....	3	3	3
Ceramic Materials, Cer. E. 202 .....	0	3	0
Ceramic and Mining Processes, Cer. E. 203 .....	0	0	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
	21	21	20

\* Students who have been certified by the Department of English as proficient in English may substitute for the courses listed Elementary German, M.L. 102.

† Or six credits in one or two of the following Departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Engineering Mechanics, E.M. 311, 312, 313 .....	3	3	3
Strength of Materials, E.M. 321 .....	0	0	3
General Economics, Econ. 201, 202, 203 .....	3	2	3
Drying Fundamentals and Practice, Cer. E. 301 .....	3	0	0
Firing Fundamentals and Practice, Cer. E. 302 .....	0	3	0
Ceramic Calculations, Cer. E. 303 .....	0	0	3
Ceramic Products, Cer. E. 305 .....	0	0	3
Engineering Thermodynamics, M.E. 307, 308 .....	3	3	0
Mechanical Engineering Laboratory I, M.E. 313, 314 .....	1	1	0
Materials Testing Laboratory, C.E. 322 .....	0	1	0
Thermal Mineralogy, Geol. 338 .....	0	3	0
Physical Chemistry, Chem. 331 .....	5	0	0
Business Law, Econ. 307 .....	0	0	3
**Electives .....	3	3	3
	21	20	21

Summer requirements: Six weeks industrial employment.

## Senior Year

Refractories, Cer. E. 405 .....	0	0	3
Silicates, I and II, Cer. E. 403, 404 .....	3	3	0
Ceramic Laboratory, Cer. E. 411, 412, 413 .....	3	3	3
Ceramic Designing, Cer. E. 414, 415 .....	0	4	4
Pyrometry, Cer. E. 401 .....	1	0	0
Technical Writing I, Eng. 321 .....	3	0	0
Elements of Electrical Engineering I, E.E. 320, 321 .....	0	3	3
Strength of Materials, E.M. 322 .....	3	0	0
Optical Mineralogy, Geol. 431, 432, 433 .....	3	3	3
**Electives .....	3	3	3
	19	19	19

All seniors are required to go on the inspection trip as part of their curriculum.

## CHEMICAL ENGINEERING

Professor E. E. Randolph, Head of the Department

Professor B. E. Lauer\*, Associate Professor T. C. Doody; Assistant Professors W. A. Bain, R. Bright, J. F. Seely; Instructors R. L. Overcash; Assistants R. G. Frady, C. D. Holland, H. G. Taylor.

Facilities.—The laboratories of the Department of Chemical Engineering are in Winston Hall. They consist of a Unit Operations laboratory; an exhibit study room; Water and Engineering-Materials Laboratory; Electrochemical Engineering Laboratory; Fuel- and Gas-Technology Room; Experimental Rayon outfit; Destructive Distillation Installation; Dark Room for metallographic and micro-photographic study; the Graduate Research Laboratory; Unit-Processes Laboratory; Plant- and Equipment-Design Laboratory; Cellulose Laboratory.

The Chemical Engineering laboratories have suitable equipment, much of it specially designed, for the study of the main processes and plant prob-

\* On leave to U. S. Army.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.



lems of the chemical engineering industries. They are supplied with direct and alternating current, gas, water, steam, compressed air, electric motors, generators, and storage batteries. They are equipped with precision and control instruments, such as refractometer, surface-tension apparatus, polariscope, potentiometer, microscopes, colorimeter, calorimeters, tint-photometer, thermocouples, and optical pyrometer. They are equipped also with filter presses, centrifuges, crushers, grinders and pulverizers, vacuum pan, stills, autoclave, jacketed kettle, gas, water, and electrical meters, equipment designed and built, such as double-effect evaporators, heat exchangers, flow-of-fluid experimental equipment for orifices, venturi meters, pitot tubes, weir, and gauges, column still, absorption tower, crystallizer, rotary and tunnel driers, gas furnace, resistance and arc electric furnace, and humidifier. An experimental refinery and hydrogenation plant for vegetable and other oils has been installed. A complete permutit softening equipment forms a unit of an experimental water-purification and -treatment system. In addition the nearby industrial plants offer opportunity for study of plant operation and problems.

Recently added to the Department of Chemical Engineering is a valuable exhibit room, where products of many chemical engineering industries are exhibited and used for instruction. They are arranged in the form of flow sheets showing the various steps in manufacturing processes.

The Department Shop is supplied with machines and tools for building and repairing equipment.

**Curriculum.**—This curriculum provides thorough training in unit operations and unit processes, and in the methods of manufacturing industrial chemical products on a large scale. It includes basic courses in Chemistry, Physics, Mathematics, and fundamental Engineering as a background for the professional Chemical Engineering training of this Department, so that the graduate is prepared to enter any field of applied chemical work as a junior engineer.

The Chemical Engineer is expected to determine the process, the material, the design, and the economic capacity of the equipment needed. Efficient production requires exact control in every stage of the process. He must devise efficient and economical methods, discover sources of loss and the remedy, recover by-products, convert waste products, and make industrial calculations of input, output, efficiency, quality, and cost.

North Carolina is a center of chemical industries in the South, with an annual output estimated at approximately one-fourth billion dollars. Some of the largest chemical industries of the country are located in this State, manufacturing such products as paper, fertilizers, vegetable oils, food products, leather, bromine, aluminum, metallurgical products, paints and varnishes. Such industries require properly trained Chemical Engineers. Chemical Engineering offers therefore inviting opportunities to render distinct service to the welfare and comfort of the people.

Graduates find employment in such fields as control work and industrial research; as technologists, superintendents of chemical industries, municipal engineers, engineers in the State and Federal health service, consulting chemical engineers, manufacturers of chemicals and of chemical equipment, chemical salesmen and representatives, developers of new chemical industries.

Ninety-three percent of the graduates of this Department are successfully engaged in Chemical Engineering work. Because chemical problems are intricate, and scientific chemical-control work in industries is required, salaries for Chemical Engineering graduates are inviting. Many graduates of this Department now hold very responsible positions.

The Department coöperates with the State Departments in their chemical problems. Facilities are available for graduate work, upon which emphasis is placed.

## CURRICULUM IN CHEMICAL ENGINEERING

For the Freshman Year, refer to page 104.

### Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303	4	4	4
*Business English, Public Speaking, Eng. 211, 231, and Elective English	3	3	3
Introduction to Chemical Engineering, Chem. E. 201, 202, 203	1	1	2
Physics for Engineers, Phys. 201, 202, 203	4	4	4
Qualitative Analysis, Chem. 211	4	0	0
Quantitative Analysis, Chem. 212, 213	0	4	4
Shopwork, M.E. 122, 123	1	1	0
†Military Science II, Mil. 201, 202, 203	2	2	2
Sport Activities, P.E. 201, 202, 203	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

### Junior Year

Engineering Mechanics, E.M. 311, 312, 313	3	3	3
Strength of Materials, E.M. 320	0	0	3
Organic Chemistry, Chem. 421, 422, 423	4	4	4
Chemical Engineering I, Chem. E. 311, 312, 313	3	3	3
Industrial Stoichiometry, Chem. E. 331	0	0	3
Chemical Engineering Laboratory I, Chem. E. 321, 322, 323	1	1	1
Physical Chemistry, Chem. 431, 432	4	4	0
Elements of Electrical Engineering I, E.E. 320, 321	3	3	0
Machine Shop I, M.E. 225, 226	1	1	0
Electives	3	3	3
	<u>22</u>	<u>22</u>	<u>20</u>

Summer requirements: Six weeks industrial employment.

\*\*Pilot Plant Practice—3 credits.

\* Students who have been certified by the Department of English as proficient in English may substitute for the courses listed German, M.L. 102, 103, 104, 203 or equivalent.

† Or six credits in one or two of the following Departments: Economics, Psychology, History, Modern Language, Sociology.

\*\* Elective Summer of 1943.

## Senior Year

Principles of Chemical Engineering, Chem. E. 411, 412, 413 .....	3	3	3
Water Treatment, Chem. E. 421 .....	3	0	0
Chemistry of Engineering Materials, Chem. E. 422 .....	0	3	0
Electrochemical Engineering, Chem. E. 423 .....	0	0	3
Chemical Engineering Lab. and Design II, Chem. E. 431, 432, 433 .....	2	2	2
Engineering Thermodynamics, M.E. 307, 308 .....	3	3	0
Mineralogy, Geol. 230 .....	0	0	3
General Economics, Econ. 201, 202, 203 .....	3	3	3
Elementary Modern Physics, Phys. 307 .....	3	0	0
Technical Writing I, Eng. 321 .....	0	3	0
Business Law, Econ. 307 .....	0	0	3
Electives .....	3	3	3
	<hr/> 20	<hr/> 20	<hr/> 20

## CIVIL ENGINEERING

Professor C. L. Mann, Head of the Department

Professors B. R. Van Leer\*, T. S. Johnson\*

Associate Professors C. R. Bramer, James Fontaine, R. E. Stiemke

Assistant Professors C. M. Lambe, W. F. Babcock

Instructor E. W. Price, Jr.

The Department of Civil Engineering is located in the Civil Engineering Building in which the offices, classrooms, laboratories, and instrument rooms were designed and built to provide suitable facilities for efficient teaching and laboratory demonstrations.

The equipment common to general civil engineering includes surveying instruments, transits, levels, plane tables, current meters, sextants, planimeters, calculating machines, blueprint apparatus, lantern slides, and moving-picture machine. Special equipment includes precise surveying instruments and such equipment as Beggs deformeter and other of this class.

The equipment in the Materials-Testing Laboratory, in the Cement- and Bituminous-Materials-Testing Laboratory, and in the Sanitary Laboratory, fully meets the present-day requirements for laboratory instruction.

The Soil Mechanics Laboratory has been furnished and equipped with the newest apparatus now used in laboratories engaged in the study of the action of soils relative to engineering problems dealing with structures, foundations, and highway subgrades.

Civil Engineering is the oldest and most general of all the branches of modern engineering; in fact, from it all of the others have developed. The usefulness of Civil Engineering is so well recognized that a student who does not have a strong predilection for some other special branch may be safely advised to study Civil Engineering.

The Civil Engineering curriculum in the School of Engineering has been accredited by the Engineers' Council for Professional Development. It is a

\* On leave.

well-balanced course of study, upon the completion of which the graduate is equipped to assume the duties of junior engineer in any of the following important fields: design, construction, operation, or testing of water-power developments, railroads, highways, water supplies, sewerage systems.

The Civil Engineering Department offers a student the choice of the following options:

General Civil

Construction and Building Materials

Sanitary

Transportation

The first two years of these curricula are the same. They begin to differentiate slightly in the junior year and more decidedly in the senior year; essentially, however, they are the same and are designed to develop in the student engineer a well-trained mind, one which reasons logically, accurately, quickly. This is accomplished by a thorough training in applied mathematics and physics, which is supplemented with practical work in the field, drafting rooms, and laboratories.

More men are practicing Civil Engineering in North Carolina than any other branch of engineering, and it is to train young men to serve under those already in the profession and subsequently to follow in their footsteps that the Civil Engineering curricula are offered.

**City Management.**—Students in Civil Engineering may by proper selection of their electives during the junior and senior years prepare themselves for work eventually leading to the position of City Manager.

## CONSTRUCTION & BUILDING MATERIALS ENGINEERING

Professor C. R. Bramer, Faculty Adviser

North Carolina's progress indicates great increase in building and general construction. Construction needs more and better-trained men to meet the immediate demands as well as to anticipate the increased demands of the future. The contractor, to be successful, must conduct his business systematically and economically. Therefore, he must learn not only general engineering technique, but also something of architecture and business methods and practices; he must delve further into construction and learn the principles involved, the methods, practices, and successful policies in use.

The contents of the curriculum in this option represent a thorough study of the needs of the industries operating in this field. This curriculum, combining construction with building materials, has been adopted to replace the former option in Construction Engineering given in the Department of Civil Engineering. It is believed that this will result in improving the training for men entering the field of contracting and construction and it also has the advantage of including subjects essential to those entering the building materials industry.

Combined into this curriculum are the fundamental courses in the Civil Engineering curriculum, courses in Architecture, courses dealing with business, and special courses covering construction and building materials in the junior and senior years.

The classroom work in this option is supplemented by frequent inspection trips to projects under construction; particular emphasis is placed upon estimating, modern methods, and management of operations.

### SANITARY ENGINEERING

Professor R. E. Stiemke, Faculty Adviser

Because Sanitary Engineering so vitally concerns the health of the people, and because of the progress in North Carolina in this field, the demand for men trained in Sanitary Engineering has increased.

The Sanitary Engineering option is offered to meet this need. In the main it is the curriculum in General Civil Engineering with selected courses in Bacteriology, Chemical Engineering, and Sanitary Engineering.

As there is a large demand in this State for men familiar with the design and operation of water and sewage plants, special attention is given to the actual design and practical operation of water-purification and sewage-disposal plants.

The Sanitary Engineering Laboratory equipment is similar to that used in water- and sewage-plant laboratories; the student makes the same tests, using standard methods, as are made in water- and sewage-plant laboratories.

The City of Raleigh water-purification plant and the College gymnasium swimming-pool filter plant are available for practical demonstration and instruction. Through the coöperation of the Bureau of Sanitary Engineering, State Board of Health, located in Raleigh, the student has an opportunity to study all phases of its works, not only in Sanitary Engineering, but also in the broad field of public health.

Upon graduation, students are prepared to hold positions as water- and sewage-plant operators, assistant resident engineers with private consulting engineers, junior engineers with state boards of health, and with the United States Public Health Service. After a few years of experience, graduates may be expected to advance to positions as superintendents of waterworks, city engineers and city managers, consulting engineers, state sanitary engineers, and senior engineers with the United States Public Health Service.

The curriculum of the Sanitary Engineering Option has been reviewed and the Laboratory and equipment inspected by the Engineers' Council for Professional Development. The Council has indicated its approval by accrediting this option.

### TRANSPORTATION ENGINEERING

Professor W. F. Babcock, Faculty Adviser

Advancement in study and improvements in construction in the ways and means of modern-day travel have progressed so rapidly in the last decade

that each division presents a field of study and investigation of its own. The railways, the highways, the inland waterways, and the airways, each performing to some extent a specific purpose, have covered our country with a transportation system far superior to any other in the world.

In order that young engineers may be trained to carry on and continue this expansion, specialized training in colleges must be available to students who wish to follow in this field.

Among the first college curriculum subdivision in the civil engineering profession was railroad engineering; this was followed by highway engineering; now that airplane travel has become so essential, it is found necessary to associate this means of travel with railroads and highways. With this in mind, the Department of Civil Engineering is offering the option Transportation Engineering, which includes a study of railroad maintenance of way, highway location and pavement design, economics of locations, waterways, airports, public relations and regulations, coordination of the different forms of transportation.

The curriculum of this option replaces the option formerly offered in Highway Engineering and follows along the same lines, broadening the scope of study to cover the field of transportation. The curriculum for the first two years is identical with and for the third year is practically the same as the regular Civil Engineering curriculum. In the fourth year, however, the student who specializes in Transportation Engineering is given more specific instructions in those subjects pertaining to the various means of transportation.

## CURRICULUM IN CIVIL ENGINEERING

General Civil Engineering  
Sanitary Engineering

Construction and Building  
Materials Engineering  
Transportation Engineering

For the Freshman Year, refer to page 104.

### Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
*Business English, Public Speaking, Eng. 211, 231, and Elective English .....	3	3	3
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Engineering Geology, Geol. 220 .....	3	0	0
Theoretical Surveying, C.E. 221, 222, 223 .....	3	3	3
Field Surveying, C.E. 225, 227 .....	1	0	1
Mapping, C.E. 226 .....	0	1	0
Engineering Mechanics, E.M. 311, 312 .....	0	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
	<u>21</u>	<u>21</u>	<u>21</u>

Surveying, C.E. 310, concurrent with Summer School, 3 credits.

\* Students who have been certified by the Department of English as proficient in English may substitute for the courses listed Elementary French, M.L. 101, 102, 201, or equivalent.

† Or six credits in one or two of the following Departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

## Junior Year

## Required

COURSES	CREDITS		
	First Term	Second Term	Third Term
Engineering Mechanics, E.M. 313 .....	3	0	0
Strength of Materials, E.M. 321, 322 .....	0	3	3
Materials of Construction, C.E. 321 .....	3	0	0
General Economics, Econ. 201, 202, 203 .....	3	3	3
	<u>9</u>	<u>6</u>	<u>6</u>

Choice must be made of one of the following:

## GENERAL CIVIL OPTION

Elements of Electrical Engineering, E.E. 320, 321 .....	3	3	0
Technical Writing I, Eng. 321 .....	3	0	0
Transportation Engineering I, C.E. 372, 373 .....	0	3	3
Fluid Mechanics, E.M. 330 .....	0	3	0
Hydraulics, C.E. 343 .....	0	0	3
Engineering Thermodynamics, M.E. 307 .....	0	0	3
Electives .....	3	6	3
	<u>18</u>	<u>21</u>	<u>18</u>

## CONSTRUCTION AND BUILDING MATERIALS OPTION

Construction Engineering I, C.E. 362, 363 .....	0	3	3
Sanitary and Mechanical Equipment of Buildings, C.E. 365 .....	3	0	0
Specifications, C.E. 367 .....	0	0	3
Architectural Details, Arch. 306 .....	0	0	2
Building Materials, Arch. 409, 410 .....	0	3	3
Principles of Accounting, Econ. 301, 302 .....	3	3	0
Applied Psychology for Engineers, Psychol. 335, 336 .....	3	3	0
Electives .....	3	3	3
	<u>21</u>	<u>21</u>	<u>20</u>

## SANITARY OPTION

Elements of Electrical Engineering, E.E. 320, 321 .....	3	3	0
Transportation Engineering I, C.E. 372, 373 .....	0	3	3
Fluid Mechanics, E.M. 330 .....	0	3	0
Hydraulics, C.E. 343 .....	0	0	3
General Bacteriology, Bot. 402 .....	0	4	0
Aquatic Biology, Bot. 473 .....	0	0	2
Sanitary Engineering, C.E. 383 .....	0	0	3
Treatment of Water and Sewage, Chem. E. 308 .....	3	0	0
Electives .....	3	3	3
	<u>18</u>	<u>22</u>	<u>20</u>

## TRANSPORTATION OPTION

Elements of Electrical Engineering, E.E. 320, 321 .....	3	3	0
Transportation Engineering I, C.E. 372, 373 .....	0	3	3
Fluid Mechanics, E.M. 330 .....	0	3	0
Hydraulics, C.E. 343 .....	0	0	3
Engineering Thermodynamics, M.E. 307 .....	0	0	3
Accounting for Engineers, Econ. 212 .....	3	0	0
Business Law, Econ. 307 .....	0	3	0
Technical Writing I, Eng. 321 .....	0	0	3
Electives .....	6	3	3
	<u>21</u>	<u>21</u>	<u>21</u>

<sup>1</sup> To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## Senior Year

## Required

COURSES	CREDITS		
	First Term	Second Term	Third Term
Reinforced Concrete, C.E. 421, 422 .....	3	3	0
Graphic Statics, C.E. 423 .....	1	0	0
Theory of Structures, C.E. 431, 432 .....	3	3	0
Structural Design, C.E. 426, 427 .....	0	3	3
	<hr/> 7	<hr/> 9	<hr/> 3

Choice must be made of one of the following:

## GENERAL CIVIL OPTION

Materials Testing Laboratory, C.E. 322, 323 .....	0	1	1
Applied Astronomy, C.E. 453 .....	4	0	0
Transportation Engineering II, C.E. 471, 472 .....	3	3	0
Sanitary Engineering Laboratory, C.E. 481, 482 .....	1	1	0
Waterworks, C.E. 485 .....	3	0	0
Sewerage, C.E. 486 .....	0	3	0
Soil Mechanics, C.E. 435 .....	0	0	3
Aerial Surveying, C.E. 455 .....	0	0	3
Business Law, Econ. 307 .....	0	0	3
Electives .....	3	3	6
	<hr/> 21	<hr/> 20	<hr/> 19

## CONSTRUCTION AND BUILDING MATERIALS OPTION

Elements of Electrical Engineering, E.E. 320, 321 .....	3	3	0
Electrical Equipment of Buildings, E.E. 343 .....	0	0	3
Construction Engineering II, C.E. 461, 462, 463 .....	3	3	3
Marketing Methods and Sales Management, Econ. 311, 312, or Corporation Finance, Econ. 320, and Labor Problems, Econ. 331 .....	3	3	0
Personnel Management, Econ. 333 .....	0	0	3
Business Law, Econ. 307 .....	0	0	3
Electives .....	3	3	3
	<hr/> 19	<hr/> 21	<hr/> 18

## SANITARY OPTION

Materials Testing Laboratory, C.E. 322, 323 .....	0	1	1
Soil Mechanics, C.E. 435 .....	0	0	3
Sanitary Engineering Laboratory, C.E. 481, 482 .....	1	1	0
Waterworks, C.E. 485 .....	3	0	0
Sewerage, C.E. 486 .....	0	3	0
Water Purification, C.E. 483 .....	0	3	0
Sewage Disposal, C.E. 489 .....	0	0	3
Financing of Sanitary Utilities, C.E. 483 .....	0	0	3
Business Law, Econ. 307 .....	3	0	0
Technical Writing I, Eng. 321 .....	0	0	3
Electives .....	6	3	3
	<hr/> 20	<hr/> 20	<hr/> 19

## TRANSPORTATION OPTION

Materials Testing Laboratory, C.E. 322, 323 .....	0	1	1
Applied Astronomy, C.E. 453 .....	4	0	0
Transportation Engineering II, C.E. 471, 472 .....	3	3	0
Transportation Design, C.E. 473 .....	2	0	0
Highway Engineering, C.E. 474, 475 .....	0	3	3
Soil Mechanics, C.E. 435 .....	0	0	3
Business Organization, Econ. 305 .....	0	0	3
Electives .....	3	3	6
	<hr/> 19	<hr/> 19	<hr/> 19

NOTE: For the duration of the war, the above junior and senior curricula will be superseded by the consolidated curriculum shown on the following page.



# JUNIOR AND SENIOR CONSOLIDATED CURRICULUM IN CIVIL ENGINEERING DEPARTMENT TO BE EFFECTIVE DURING THE ACCELERATED ENGINEERING EDUCATION PROGRAM

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Engineering Mechanics, E.M. 313 .....	3	0	0
Strength of Materials, E.M. 321, 322 .....	0	3	3
Elements of Electrical Engineering, E.E. 320, 321 .....	3	3	0
Materials of Construction, C.E. 321 .....	3	0	0
Fluid Mechanics, E.M. 330 .....	0	3	0
Hydraulics, C.E. 343 .....	0	0	3
Transportation Engineering I, C.E. 372, 373 .....	3	3	0
Transportation Engineering II, C.E. 471 .....	0	0	3
Technical Writing I, Eng. 321 .....	0	3	0
Engineering Thermodynamics, M.E. 307 .....	0	0	3
General Economics, Econ. 201, 202, 203 .....	3	3	3
Surveying, C.E. 3310 .....	1	1	1
Electives .....	3	3	3
	19	22	19

## Senior Year

Reinforced Concrete, C.E. 421, 422 .....	3	3	0
Graphic Statics, C.E. 423 .....	1	0	0
Structural Design, C.E. 426, 427 .....	0	3	3
Theory of Structures, C.E. 431, 432 .....	3	3	0
Soil Mechanics, C.E. 435 .....	3	0	0
Applied Astronomy, C.E. 453 .....	0	0	4
Aerial Surveying, C.E. 455 .....	3	0	0
Sanitary Engineering Laboratory, C.E. 481, 482 .....	0	1	1
Waterworks C.E. 485 .....	0	3	0
Sewerage, C.E. 486 .....	0	0	3
Materials Testing Laboratory, C.E. 322, 323 .....	1	1	0
Construction Engineering I, C.E. 362, 363 .....	0	3	3
Specifications, C.E. 367 .....	0	0	3
Business Law, Econ. 307 .....	3	0	0
Electives .....	3	3	3
	20	20	20

<sup>1</sup> To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## DEPARTMENT OF ELECTRICAL ENGINEERING

Professor William Hand Browne, Jr., Head of the Department  
Professors J. E. Lear, R. S. Fouraker; Associate Professors R. R. Brown,  
L. M. Keever; Assistant Professors R. J. Pearsall, K. B. Glenn, E. W.  
Winkler; Instructor J. H. Nichols.

**Buildings and Equipment.**—The Department is housed in Daniels Hall. This is an L-shaped building, the main part of which is four stories of brick, stone and steel construction, with a two-story wing of shop construction.

**Laboratories.**—The laboratories can be classified as follows: Dynamo, Communications and Transmission; Photometric, Measurements, Standards, High-Tension, and Electronics. The Dynamo, High-Tension, and Electronics Laboratories are located in the wing; all the others are in the basement of Daniels Hall.

The Dynamo Laboratory is sixty by eighty feet in area. Here the characteristics and operating conditions of representative types of machines are studied. This laboratory has a total of approximately 300 kva of motors and generators (about 50 in all). There are about 150 kilowatts available in motor-generator sets, and rotary converters.

There are also available approximately 150 kva of transformers for tests.

The laboratory is well supplied with accessory equipment, such as load units, field rheostats, starting boxes, prony brakes, inductances, capacitors, and other devices.

The Communications and Transmission Laboratory is equipped for measurements and tests on communication and power-transmission circuits. It contains an outstanding artificial power-transmission line on which power-transmission-line characteristics can be duplicated for study and testing. A complete long-line telephone system, with two two-way repeaters and associated apparatus, arranged for all usual and several special tests, is another feature of this laboratory. Other equipment for study and test includes an artificial line for the study of corona effects, artificial telephone lines, telephone central-station equipment, telegraph equipment, teletypewriter equipment, and a complete 100-line private automatic exchange with its associated appliances. Test equipment includes standard oscillators, transmission-measuring sets, noise-measuring sets, power-level instruments, audibility meters, attenuators, and apparatus for measuring distortion.

The Photometric Laboratory is housed in a room especially fitted up for the purpose. The equipment includes photometric standard lamps, two 300-cm. Leeds & Northrup photometer bars, a 36" Ulbrecht spherical photometer, two Macbeth-Evans Illuminometers, several Weston foot-candle meters, and other portable photometers. There is also the usual list of accessories, such as sight boxes of the Lummer-Brodhun and flicker types, rotating disks, and screens.

The Measurements Laboratory is arranged for making standard and special tests and measurements on the fundamental electrical units. The apparatus includes standards of resistance, inductance and capacitance, with special bridges for the measurement of each, Fahy permeameter and Epstein core-loss test sets for magnetic measurements on iron and steel, a double-bridge and oil-bath arrangement for conductivity measurements, and other special test appliances.

The Standards Laboratory is arranged for making accurate calibration tests on all types of electrical instruments. There are two specially designed test tables equipped with convenient means of controlling current and voltage. A large number of high-quality instruments of all types is provided. These include standard cells, a Leeds-Northrup Type-K and a Queen-Gray Potentiometer, standard voltmeters, ammeters, wattmeters, watt-hour meters, transformers, resistances, condensers and inductances. Certificates of accuracy from the National Bureau of Standards in Washington, D. C., have been obtained for many of these instruments. Special equipment used includes a sine-wave generator, a constant-speed frequency set, Silsbee current- and potential-transformer test sets, and others.

The High-Tension Laboratory has a  $7\frac{1}{2}$ -kva, 50,000-volt, and a 10-kva, 100,000-volt transformer. The induction regulators, which go with these transformers make it possible to vary the voltage from zero to 150,000 volts. There is also standard oil-testing equipment for testing transformer oil, a standard spark gap, and numerous insulators of various types for carrying on routine tests. Frequent use is made of the cathode-ray oscillograph in studying surges and other disturbances.

**The Electronics Laboratory.**—The Electronics Laboratory is arranged for testing electronic devices and their associated equipment and circuits. It is supplied with the various types of electron tubes, including vacuum tubes, gaseous tubes, phototubes, mercury-vapor tubes, cathode-ray tubes, and apparatus for operating and testing them. The test equipment includes vacuum-tube bridge and test sets, oscilloscopes, television equipment, and the various sensitive instruments required for electronic measurements.

**Instrument Room and Shop.**—A centrally located Instrument Room serves all of the laboratories. Instruments are issued upon requisition and returned at the end of the laboratory period. They are kept in repair by a competent man, who divides his time between the care of the instruments and the Departmental Shop, which adjoins the Instrument Room. The Shop is fitted up with sufficient tools for making all minor repairs to laboratory equipment, as well as apparatus for special research.

The Storage-Battery Room contains two 120-volt, 100-ampere-hour batteries; two 12-volt, 200-ampere-hour batteries, the complete battery and counter emf cells for operating the automatic telephone station, and portable cells of various types. Motor-generator sets, and mercury-vapor and tungar rectifiers are provided for charging the batteries.

The Purposes of the Curriculum are the training of young men for active work in a wide and diversified field. The electrical industry demands, above all else, a thorough preparation in the sciences underlying all branches of engineering, a broad foundation in fundamental electrical theory, and a clear understanding of the characteristics of electrical machinery and systems. These factors are essential for success, whether it be in the design and manufacture of electrical equipment, in power production and utilization, or the fields of communication and signaling, since in all these branches of the industry technical advances are being made with increasing rapidity. With this object in view, the curriculum in Electrical Engineering includes comprehensive training in mathematics, physics, and chemistry—the fundamental sciences—and adequate training in allied branches of engineering. All courses are accompanied by coördinated work in the laboratory and intensive drill in the applications of theory by means of carefully planned problems. In the senior year, the student is offered two options, one in the fundamentals of communication, the other in the field of industrial applications.

The curriculum includes a thorough drill in the preparation of technical reports. There is a decided trend in industry to select for high administrative positions men who have had good technical training and have in addition developed executive ability. The electives included in the curriculum in Electrical Engineering enable a student inclined toward executive work to take nonprofessional courses which deal with the economic and sociological problems of the day. On the other hand, those students who prefer the more technical phases of engineering can select electives specially helpful in that particular branch of the profession into which they wish to go. Students are urged to plan as early as possible a worth-while group of elective courses so chosen as to round out their curriculum.

Each student is also required to spend at least six weeks in satisfactory industrial employment before receiving his degree.

Close coördination in the work of the American Institute of Electrical Engineers is effected through a student branch at the College, which meets twice a month, through the State Section of the Institute, which meets several times during the year, and through the regional meetings of the Institute, one section of which is organized as a student-activities conference.

## CURRICULUM IN ELECTRICAL ENGINEERING

For the Freshman Year, refer to page 104.

Surveying, C.E. 200, 3 credits, is required in the summer immediately following the freshman year.

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
*Business English, Public Speaking, Eng. 211, 231, and Elective English .....	3	3	3
General Economics, Econ. 201, 202, 203 .....	3	3	3
Forge and Welding Practice, M.E. 128 .....	0	0	3
†Electrical Engineering Fundamentals, E.E. 201, 202 ..	3	3	0
‡Military Science II, Mil. 211, 212, 213 .....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Junior Year

Engineering Mechanics, E.M. 311, 312, 313 .....	3	3	3
Elementary Mechanism, M.E. 215, 216, 217 .....	1	1	1
Engineering Thermodynamics, M.E. 307, 308, 309 .....	3	3	3
Mechanical Engineering Laboratory I, M.E. 313, 314, 315 ..	1	1	1
Fundamentals of Electronics, E.E. 315 .....	0	0	3
Differential Equations, Math. 431a .....	3	0	0
Elementary Modern Physics, Phys. 407 .....	0	3	0
Electrical Engineering, E.E. 301, 302, 303 .....	4	4	4
Electrical Engineering Laboratory I, E.E. 311, 312, 313 ..	2	2	2
Electives .....	3	3	3
	<u>20</u>	<u>20</u>	<u>20</u>

Summer requirements: Six weeks industrial employment.

## Senior Year

Engineering Economics, I.E. 301 .....	3	0	0
Accounting for Engineers, Econ. 212 .....	0	3	0
Business Law, Econ. 307 .....	0	0	3
Strength of Materials, E.M. 320 .....	3	0	0
Electrical Industry, I.E. 402 .....	0	3	0
Fluid Mechanics, Hydraulic Machinery, E.M. 330, 331 ..	3	3	0
Illumination, E.E. 437 .....	0	0	3
Technical Writing, Eng. 321 .....	0	0	3
Alternating Current Machinery, E.E. 401, 402 .....	4	4	0
Electric Transmission, E.E. 403 .....	0	0	4
Electrical Engineering Laboratory, E.E. 411, 412, 413 ...	2	2	2
First Option			
Electric Power Applications, E.E. 421, 422, 423 .....	3	3	3
Electric Communication, E.E. 425, 426, 427 .....	3	3	3
Second Option			
Electives .....	3	3	3
	<u>21</u>	<u>21</u>	<u>21</u>

NOTE: For the duration of the war the above curriculum will be superseded by the modified curriculum shown on the following page.

\* Students who have been certified by the Department of English as proficient in English may substitute for the courses listed a Modern Language.

† Sophomore class is divided into two sections, one half taking Fundamentals and Metal Work as scheduled, the other half taking the Metal Shop during the Fall Term and the Electrical Engineering Fundamentals the second and third terms.

‡ Or 6 credits in one or two of the following Departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

## CURRICULUM IN ELECTRICAL ENGINEERING

(Modified curriculum as now offered for the duration of the war)

For the Freshman Year, refer to page 104

Surveying, C.E. 200, 3 credits, is required in the summer immediately following the freshman year.

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303	4	4	4
Physics for Engineers, Phys. 201, 202, 203	4	4	4
*Business English, Public Speaking, Eng. 211, 231, and Elective English	3	3	3
General Economics, Econ. 201, 202	3	3	0
Forge and Welding Practice, M.E. 128	0	0	3
Electrical Engineering Fundamentals, E.E. 201, 202, 203	3	3	3
†Military Science II, Mil. 211, 212, 213	2	2	2
Sport Activities, P.E. 201, 202, 203	1	1	1
	20	20	20

## Junior Year

Engineering Mechanics, E.M. 311, 312, 313	3	3	3
Elementary Mechanism, M.E. 215, 216, 217	1	1	1
Engineering Thermodynamics, M.E. 307, 308, 309	3	3	3
Mechanical Engineering Laboratory I, M.E. 313	1	0	0
Differential Equations, Math. 431a	3	0	0
Electrical Engineering, E.E. 301, 302, 303	4	4	4
Electrical Engineering Laboratory I, E.E. 311, 312, 313	2	2	2
Fundamentals of Electronics, E.E. 315, 316	0	4	4
Electives	3	3	3
	20	20	20

Summer requirements: Six weeks industrial employment.

## Senior Year

Engineering Economics, I.E. 301	3	0	0
Accounting for Engineers, Econ. 212	0	3	0
Business Law, Econ. 307	0	0	3
Strength of Materials, E.M. 321	3	0	0
Electrical Industry, I.E. 402	0	3	0
Technical Writing, Eng. 321	0	0	3
Fluid Mechanics, Hydraulic Machinery, E.M. 330, 331	3	3	0
Alternating Current Machinery, E.E. 401, 402	4	4	0
Electric Transmission, E.E. 403	0	0	4
Electrical Engineering Laboratory, 411, 412, 413	2	2	2
Illumination, E.E. 437	0	0	3
First Option			
Electric Power Applications, E.E. 421, 422, 423	3	3	3
Second Option (See foot note)			
Electric Communication, E.E. 425, 426, 427	4	4	4
Electives	3	3	3
	21	21	21

NOTE: Seniors electing the communications option will substitute Ultra High Frequency Techniques, E.E. 445, 446, 447, 4-4-4 for the following courses: Business Law, Econ. 307; Accounting for Engineers, Econ. 212; Electrical Industry, I.E. 402, Hydraulic Machinery, E.M. 331 and Illumination, E.E. 437.

\* Students who have been certified by the Department of English as proficient in English may substitute for the courses listed a Modern Language.

† Or six credits in one or two of the following Departments: Economics, Psychology, History and Political Science, Modern Language, Sociology.

## GENERAL ENGINEERING

The Curriculum in Engineering Leading to the Degree,  
Bachelor of Science in Engineering

Professor G. Wallace Smith, Administrative Officer

We live in a world of applied science; for that reason, the cultured gentleman of the twentieth century must know something of Engineering. Otherwise, he is not well informed.

Engineering is not only a means of earning a livelihood; it is also a culture, a manner of thinking and living. It is founded upon the pure sciences of Mathematics, Physics, and Chemistry. It deals largely with Materials, Methods, Men, and Money. There appears to be an increasing demand for a curriculum which will offer to young men the opportunity to study Engineering as a field of culture, with no specific purpose of specialization but solely with the idea of obtaining a well-balanced thoroughly rigorous training and discipline in the basic principles of Engineering. Largely for this reason this curriculum is offered, and it omits no essential foundation stone in the present recognized Engineering curricula. The freshman year is identical with the other Engineering curricula. The sophomore, junior, and senior years maintain the basic fundamental courses, but the special technical courses as required in the other Engineering curricula are replaced by electives, which may be chosen according to the major interest of the student. However, a number of these electives must be chosen from courses that are outside of the technical and special technical fields.

The advantages of this curriculum are:

The student acquires a broad training in the basic principles of Engineering.

He has more electives and more freedom in the choice of these electives than in the specialized curricula.

If the student upon entering college is in doubt as to what particular field of specialization he desires, this curriculum will enable him to start his academic training and complete his first full year without losing time or credits required in any of the specialized curricula.

In his second year the student will receive the basic training required of all the engineering curricula and have an opportunity to elect courses that will prepare him for future study in some particular field of specialization in which he might be interested.

The proper use of electives throughout the last three years will, therefore, enable the student to complete the requirements for a degree in this curriculum and at the same time obtain a considerable number of credits for use in some specialized curricula, so that he can return to school for not more than one year and receive a degree in the particular field of study in which he has become interested.

## CURRICULUM IN GENERAL ENGINEERING

For the Freshman Year, refer to page 104.

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
Physics, Phys. 201, 202, 203 .....	4	4	4
<sup>1</sup> Business English, Public Speaking, Eng. 211, 231, and Elective English .....	3	3	3
<sup>2</sup> Military Science II, Mil. 201, 202, 203 or Alternate .....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
<sup>4</sup> Electives .....	6	6	6
	<u>20</u>	<u>20</u>	<u>20</u>

Junior Year<sup>5</sup>

Engineering Mechanics, E.M. 311, 312, 313 .....	3	3	3
Strength of Materials, E.M. 321 .....	0	0	3
Engineering Geology, Geol. 220 .....	0	0	3
Thermodynamics, M.E. 307, 308 .....	3	3	0
Mechanical Engr. Lab. I, M.E. 313, 314 .....	1	1	0
Economics, Econ. 201, 202, 203, or other Social Science ..	3	3	3
<sup>3</sup> Military Science III, Mil. 301, 302, 303 or Alternate ..	3	3	3
<sup>4</sup> Electives .....	6	6	6
	<u>19</u>	<u>19</u>	<u>21</u>

## Senior Year

Elements of Elect. Engr. I, E.E. 320, 321 .....	0	3	3
Elements of Elect. Engr. Lab. II, E.E. 325, 326 .....	0	1	1
Theory of Structures, C.E. 431, 432 .....	0	3	3
Fluid Mechanics, E.M. 330 .....	3	0	0
Accounting I, Econ. 301, 302, 303 .....	3	3	3
Strength of Materials, E.M. 322 .....	3	0	0
Business Law, Econ. 307 .....	3	0	0
<sup>3</sup> Military Science IV, Mil. 401, 402, 403 or Alternate ..	3	3	3
<sup>4</sup> Electives .....	6	6	6
	<u>21</u>	<u>19</u>	<u>19</u>

<sup>1</sup> Students who have been certified by the Department of English as proficient in English may substitute for the courses listed a Modern Language.

<sup>2</sup> Or 6 credits in one or two of the following departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

<sup>3</sup> To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

<sup>4</sup> Free electives, except that not more than 39 term credits may be chosen from the technical or special technical courses in the School of Engineering.

<sup>5</sup> Students who contemplate the addition of a fifth year in Engineering for the purpose of obtaining a professional degree will consult the head of the department in which he intends to major and make such substitutions for the Engineering courses offered in this curriculum as are necessary for the satisfactory completion of the technical requirements of the degree sought.



## GEOLOGICAL ENGINEERING

Professor Jasper L. Stuckey, Head of the Department

Assistant Professor John M. Parker\*

Instructors Ross I. Edwards, E. L. Miller, Jr.

**Function and Facilities.**—The function of the Department of Geology is twofold: first, to offer service courses required as prerequisites in the Agricultural, Educational, and Engineering curricula; second, to administer the curriculum in Geological Engineering.

The classrooms, laboratories, and offices of the Department are in Primrose Hall. The equipment includes a varied collection of minerals, rocks, and fossils, illustrating the materials of different parts of the earth's crust; laboratory equipment for carrying on qualitative chemical and blowpipe examination of minerals and rocks; microscopes and other optical equipment; facilities for making thin sections of rocks and minerals; geological models; a collection of topographic maps and geologic folios illustrating important and typical areas in the United States.

**The Curriculum** is designed to train young men in the fundamentals of engineering with its special application of geology. Many engineering undertakings, especially major construction projects, such as large dams and reservoirs, tunnels, large buildings, depend for success on exact knowledge of their geological setting. On the other hand, such geological problems as the economical development of mineral resources require the use of the precise methods of engineering. The curriculum combines these two sorts of information and training so necessary to success in this important specialized field.

**Professional Outlook.**—Geological engineering is a new and rapidly growing field of engineering. Geological engineers are unique in that a number of varied fields are open to them. They are in demand by State and Federal Surveys, by oil and mining companies for service here and abroad, by cities and municipalities, by engineering construction companies, by technical schools as teachers, and by many others.

For the young man who wants to live and practice his profession in the South this curriculum offers excellent training in the application of geological science to engineering construction, especially in foundations. The importance of this relationship has been emphasized in recent years by failures of engineering works such as dams, bridges, buildings, and highways, caused by the lack of thorough geological investigations.

The problem of supplying water to our growing cities and to the thousands of small communities and farms in the South is one that the geological engineer is well-trained to solve.

Many large cities have become aware of the importance of geological knowledge in subway construction, water distribution, building and bridge

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\* On leave.

foundations, etc., and have geological engineers to handle problems which arise from such work. In the future, more of this kind of underground exploration will be performed in the interests of safety and economy.

The greatly increased transportation of the world in the next few years will tax heavily all of our transportation facilities, and harbors, rivers, coastal erosion, inland waterways, highways, railroads, and airports will demand many geological engineers.

The Southeast offers tremendous possibilities to geological engineers who are interested in the mineral industries. Here in this region are deposits of iron, coal, phosphates, mica, feldspar, spodumene, copper, nickle, kaolin, cyanite, barite, limestone, pyrophyllite, marls, and other minerals.

A graduate of this curriculum is trained to follow two broad fields of engineering either in the United States or in foreign countries: one, the application of geology to engineering work, and the other, the application of geology in the mineral industries.

## CURRICULUM IN GEOLOGICAL ENGINEERING

For the Freshman Year, refer to page 104.

### Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303	4	4	4
*Business English and Public Speaking, Eng. 211, 231, and Elective English	3	3	3
Qualitative Analysis, Chem. 211	4	0	0
Quantitative Analysis, Chem. 212	0	4	0
Physics for Engineers, Phys. 201, 202, 203	4	4	4
Engineering Geology, Geol. 220	3	0	0
Historical Geology, Geol. 222	0	3	0
Mineralogy, Geol. 230	0	0	3
Geomorphology, Geol. 223	0	0	3
†Military Science II, Mil. 201, 202, 203	2	2	2
Sport Activities, P.E. 201, 202, 203	1	1	1
	<u>21</u>	<u>21</u>	<u>20</u>

### Junior Year

Engineering Mechanics, E.M. 311, 312, 313	3	3	3
Fluid Mechanics, E.M. 330	0	0	3
Strength of Materials, E.M. 321	0	0	3
Elements of Electrical Engineering, E.E. 320, 321	3	3	0
Physical Chemistry, Chem. 331	5	0	0
Theoretical Surveying, C.E. 221, 222	3	3	0
Field Surveying, C.E. 225	1	0	0
Mapping, C.E. 226	0	1	0
Stratigraphy and Index Fossils, Geol. 361	3	0	0
Petrology, Geol. 443	0	0	4
Advanced Mineralogy, Geol. 332	0	3	0
Structural Geology, Geol. 352	0	4	0
Geophysics, Geol. 353	0	0	4
Electives	3	3	3
	<u>21</u>	<u>20</u>	<u>20</u>

\* Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

† Or six credits in one or two of the following departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

## Senior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
General Economics, Econ. 201, 202, 203 .....	3	3	3
Business Law, Econ. 307 .....	0	3	0
Optical Mineralogy, Geol. 431, 432, 433 .....	3	3	3
Engineering Thermodynamics, M.E. 307 .....	3	0	0
Technical Writing I, Eng. 321 .....	3	0	0
Economic Geology, Geol. 411, 412, 413 .....	3	3	3
Advanced Engineering Geology, Geol. 462 .....	0	3	0
Field Methods, Geol. 463 .....	0	0	4
Mining Engineering, Mine Design, and Ore Dressing, Geol. 471, 472, 473 .....	3	3	3
Electives .....	3	3	3
	<hr/> 21	<hr/> 21	<hr/> 19

## INDUSTRIAL ENGINEERING

Professor H. B. Shaw, Head of the Department

\*Professor F. F. Groseclose; Instructor \*\*David E. Henderson

North Carolina has an abundance of natural resources, and its industries are progressing steadily, which facts mean that there are increasing needs for educated personnel and informed leaders to deal with the complexities of modern industries.

Engineers have had a surprisingly large share in America's amazing industrial progress through their engineering knowledge and the adaptation of engineering methods and approach to the solution of industrial problems. To be even more effective in industry and modern life, engineers should, to their study of engineering, add knowledge of the economic and social sciences since they must deal, not only with the materials and forces of nature, but also with men, money, and affairs, in their industrial relations.

The aim of the curriculum in Industrial Engineering is to prepare students to enter the employ of industries as engineering graduates, then through experience, to develop into positions of responsibility and service, and thus to meet the demands of industries for men educated as engineers with special preparation for the activities of industries.

The curriculum provides thorough education in the fundamentals of engineering, with a three term course in each Mechanical and Electrical Engineering. Accounting, Economics, and Psychology are emphasized. The special technical courses apply engineering methods in the studies of industry, to the end that students may learn to make engineering, economic, and social analyses concurrently, and to apply them to the conduct of enterprises.

Electives from engineering and other courses, approved by the adviser, offer opportunity for the development of individual aptitudes. Students in Industrial Engineering get class and laboratory instruction from other

\* On military leave.

\*\* Resigned.

Engineering Departments and from other courses, which are correlated and extended by the Industrial Engineering courses.

The classrooms and offices of Industrial Engineering are in rooms 125 to 132, on the first floor of 1911 Building.

Attention is directed to the course in Motion and Time Study (I. E. 322) which is required of Industrial Engineering juniors and is elective for others.

## CURRICULUM IN INDUSTRIAL ENGINEERING

For the Freshman Year, refer to page 104.

### Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 203	4	4	4
*Business English, Public Speaking, Eng. 211, 221, and Elective English	3	3	3
Physics for Engineers, Phys. 201, 202, 203	4	4	4
General Economics, Econ. 201, 202, 203	3	3	3
Shopwork, M.E. 124, 125, 126	2	2	2
Industrial Organization, I.E. 101, 102, 103	3	3	3
*Military Science II, M.I. 201, 202, 203	2	2	2
Sport Activities, P.E. 201, 202, 203	1	1	1
	22	22	22

### Junior Year

Engineering Mechanics, E.M. 311, 312, 313	3	3	3
Strength of Materials, E.M. 321	0	0	3
Engineering Thermodynamics, M.E. 307, 308, 309	3	3	3
Mechanical Engineering Laboratory I, M.E. 313, 314, 315	1	1	1
Machine Shop II, M.E. 327, 328, 329	1	1	1
Factory Equipment, M.E. 324	2	0	0
Principles Accounting, Econ. 301, 302, 303	3	2	3
Management Engineering, I.E. 201, 202, 203	3	3	3
Motion and Time Study, I.E. 322	0	3	0
Electives	3	3	3
	20	20	20

### Senior Year

Summer requirement: Six weeks industrial employment.			
Technical Writing I, Eng. 321	0	3	0
Business Law, Econ. 307	3	0	0
Industrial Psychology, Psychol. 335	0	0	3
Materials of Construction, C.E. 321	3	0	0
Elements of Electrical Engineering, E.E. 320, 321, 322	3	3	3
Electrical Engineering Laboratory, II, E.E. 325, 326, 327	1	1	1
Engineering Economics, I.E. 301	0	3	0
Electrical Industry, I.E. 402	0	3	0
Industrial Engineering Problems, I.E. 312, 313	0	3	3
Investigation and Report, I.E. 413	0	0	3
Electives	6	6	6
	19	19	19

\* Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

\* Or six credits in one or two of the following departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology, Ethics and Religion.

## MECHANICAL ENGINEERING

Professor R. B. Rice, Executive Officer of the Department

Professors H. H. Briggs, E. G. Hofer, H. E. Satterfield, F. B. Wheeler;  
Associate Professors W. S. Bridges, W. G. Van Note; Assistant Professors W. E. Adams, T. C. Brown, R. L. Cope, M. R. Rowland; Instructors F. C. Bragg, T. E. Hyde, P. B. Leonard, C. W. Maddison, B. B. Redmon, E. L. Perry, E. H. Stinson; Instructor Emeritus C. B. Park.

**Purposes.**—The Mechanical Engineer is primarily a designer and builder of machines and other equipment for use in manufacturing processes, transportation, and the generation of power. He is responsible for the conservation and economical use of the power-producing resources of the world through the application of the proper equipment in each field of production. He is called upon to take charge of the executive management of the manufacturing, transportation, and power industries. For the Mechanical Engineer to be well grounded in his profession, he must be thoroughly familiar with both the science and the art of engineering.

The curriculum in Mechanical Engineering begins with a thorough training in Mathematics, Physics, and Chemistry, as a foundation for the technical work which is later developed along several parallel lines. The student is taught how these fundamental sciences are applied to the physical properties of the materials of construction, and to the transformation of heat energy into work and power. This is accomplished by means of courses in Drafting, Metallurgy, Mechanics, and Thermodynamics; through the work in the wood shop, forge and welding shop, foundry, and machine shop; by the tests performed in the mechanical laboratories.

Through the training offered in this curriculum it is hoped that the young graduate, after gaining some experience in industry, will be qualified to accept the responsibilities which will be imposed upon him in the professional field of Mechanical Engineering.

**Buildings and Equipment.**—The Department of Mechanical Engineering occupies both Page Hall and the Park Building. In Page Hall are the offices of the Department, offices for the Drawing Division and the Laboratory Division, classrooms, drafting rooms, the Internal-Combustion-Engine Laboratory, and Hydraulics and Fluid Flow Laboratory. The Park Building contains the Mechanical Engineering Laboratory, the Metallurgy Laboratory, the Heating and Air-Conditioning Laboratory, the Wood Shop, the Foundry, the Forge and Welding Shop, and the Machine Shop. It also contains the offices of the Faculty in the several Shops and one classroom.

**Drafting Rooms.**—The drafting rooms are equipped with tables, stools, cases for boards, reference files, and models. The drafting rooms have two Universal Drafting Machines in addition to other necessary equipment. The blueprint room contains an electric blueprint machine, a sheet washer, and

an ozalid printing machine, besides the usual sun frames. Fluorescent lights are used in the drafting rooms.

**Shops.**—The Wood Shop is equipped with a variety of woodworking machines: lathes, combination saw, dado saw, cut-off saw, jointer, mortiser, sanders, moulder, sticker, trimmer, shaper, boring machines, band saws, jig saw, various types of clamps, a glue room, and other essentials that go to make an up-to-date shop. The machines are motor driven with either individual or group drive. The shop includes work benches, hand tools and necessary auxiliary equipment and a modern spray-gun for finishing surfaces.

The Foundry Equipment consists of a 36" cupola, a 22" cupola, brass furnace, core oven, core machine, moulding machines, cleaning mill, motor-driven elevator, emery wheel and buffer, and the necessary tools and patterns for practical moulding. Sand-testing equipment is available for experimental work.

The Forge and Welding Shop is equipped with thirty anvils and forges, the blast for the forges being produced by a large powder blower and regulated by individual controls on each forge. The shop is also equipped with a modern down-draft-type exhaust system. Other equipment consists of iron shears, vises, emery wheels, and other necessary forging equipment. A 300-ampere direct-current electric welder and a ten-station oxy-acetylene welding-manifold system completes this equipment.

The Machine Shop, well heated, lighted, and ventilated, is equipped with work benches, machinist's vises, and a variety of machine tools: engine lathes, bench lathes, shapers, planers, milling machines, vertical and horizontal boring mills, drill presses, slotting machines, grinders, arbor presses, and a variety of hand tools, cutters, clamps, jigs, and other equipment necessary to modern machine-shop practice. Some of the machines are group driven, others are individually driven.

**Laboratories.**—The Heat-Power, Heating and Air-Conditioning, and Metallurgical Laboratories are located in the Park Building. The Heat-Power Laboratory is equipped with plain slide-valve, automatic cut-off, multiple-expansion, and uniflow engines arranged for condensing and noncondensing operation. It is provided with a turbo-generator set complete with a high-vacuum condenser. A two-stage air compressor driven by a uniflow engine supplies air for experimentation. Weighing tanks and steam pumps make possible tests in this field. This division of the laboratory is equipped with instruments and apparatus for making coal and gas analyses and tests, lubrication tests, calibration tests, heat-transfer tests, nozzle tests, and general efficiency and thermodynamic tests.

The Heating and Air-Conditioning division of the laboratory contains several heating boilers with appropriate oil-burning equipment, weighing tanks and instruments for complete tests. The laboratory is also equipped with an air conditioner, unit heaters, radiator-testing equipment, a half-ton refrigeration machine, insulation-testing equipment and a fan-and-duct testing unit.

The Metallurgical Laboratory is equipped for work dealing with the structure and the physical and mechanical properties of metals and alloys. The equipment includes electric and gas heat-treating furnaces with controls; indicating and recording pyrometers; apparatus for polishing and etching specimens; metallurgical microscopes with complete lens combinations; dark rooms for photographic; and, photoelastic equipment. The laboratory is equipped with 15,000-lb. and 50,000-lb. material-testing machines.

The Hydraulic-Machinery, and Internal-Combustion-Engine Laboratories are housed in the basement of Page Hall. The Laboratories are equipped with a new twenty-inch wind tunnel capable of speeds in excess of 100 miles per hour. The tunnel is equipped with automatic balances. A smokebox is provided for flow-analysis work. Photographic equipment is provided for flow study.

The Hydraulic Testing Laboratory contains a ten-inch Francis-Type Hydraulic Turbine, of the most modern design, directly connected to an electric dynamometer, together with weir, Venturi, flume, and instruments for complete test. The laboratory has high-speed and low-speed centrifugal pumps arranged for tests, also Venturi tubes, weirs, nozzles, meters, and a hydraulic channel for the study of flow.

The Internal-Combustion-Engine Laboratory is equipped with high-speed and low-speed compression-ignition engines, automotive and stationary spark-ignition engines, air-cooled and liquid-cooled aircraft engines, all of modern design. Each of the test engines, of which there are ten at present, is equipped with its power-absorbing device, such as club-propellers in the case of aero engines and water brakes, calibrated electric generators and electric cradle-dynamometers for the other engines. A 5-hp. electric dynamometer is provided for accessory testing and a 125-hp. dynamometer for high-speed-engine testing. Engines, carburetors, ignition equipment and accessories are provided for study. A C.F.R.-A.S.T.M. unit is available for fuel research.

Recent additions to the Internal Combustion Laboratory consist of a 500 H.P. twelve cylinder Vee-type marine diesel engine; two 150 H.P. 6 cylinder high-speed marine diesel engines; a high-speed automotive type 85 H.P. diesel; a 60 H.P. stationary diesel engine with direct connected generators; a complete itenary of diesel fuel-pumps, nozzles, governors, transfer pumps, and allied equipment together with a fuel-pump testing and calibrating unit, nozzle testors, and spray analyzers. The laboratory is also equipped with high-speed indicators of the cathode ray type and vibration analyzers for the study of motion and vibration of engine parts; and a centrifugal super-charging testing unit with a high-speed dynamometer.

All of the laboratories are designed around the unit system for instruction, whereby units in or whole divisions of the laboratory may be operated without depending on or interfering with other units or divisions.

## CURRICULUM IN MECHANICAL ENGINEERING

For the Freshman Year, refer to page 104.

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Calculus I, II, III, Math. 201, 202, 303 .....	4	4	4
*Business English, Public Speaking, Eng. 211, 231, and Elective English .....	3	3	3
Physics for Engineers, Phys. 201, 202, 203 .....	4	4	4
Mechanical Drawing, M.E. 211, 212, 213 .....	2	2	2
Shopwork, M.E. 124, 125, 126 .....	2	2	2
Engineering Mechanics, E.M. 311, 312 .....	0	3	3
†Military Science, Mil. 201, 202, 203 .....	2	2	2
Physical Education, P.E. 201, 202, 203 .....	1	1	1
	18	21	21

## Junior Year

Engineering Mechanics, E.M. 313 .....	3	0	0
Machine Shop II, M.E. 227, 228, 229 .....	1	1	1
Engineering Thermodynamics, M.E. 307, 308, 309 .....	3	3	3
Mech. Eng. Lab. I, M.E. 313, 314, 315 .....	1	1	1
‡Kinematics, M.E. 317, 318, 319 .....	3	3	3
Materials of Construction, C.E. 321 .....	0	3	0
Metallurgy, M.E. 322, 323 .....	0	3	3
Strength of Materials, E.M. 321, 322 .....	0	3	3
Fluid Mechanics, E.M. 330 .....	0	0	3
Business Law, Econ. 307 .....	3	0	0
Technical Writing, Eng. 321 .....	3	0	0
**Electives .....	3	3	3
	20	20	20

Summer requirement: Six weeks of industrial employment.

## MECHANICAL ENGINEERING I—GENERAL OPTION

Professor R. B. Rice, Faculty Adviser

## Senior Year

General Economics, Econ. 201, 202, 203 .....	3	3	3
Power Plants, M.E. 401, 402, 403 .....	3	3	3
Heating and Air Conditioning, M.E. 404 .....	0	3	0
Machine Design, M.E. 411, 412, 413 .....	3	3	3
Refrigeration, M.E. 405 .....	0	0	3
Mechanical Engineering Lab. II, M.E. 407, 408, 409 .....	1	1	1
Elements of Electrical Engineering, E.E. 320, 321, 322 .....	3	3	3
Electrical Eng. Lab. II, E.E. 325, 326, 327 .....	1	1	1
Hydraulic Machinery, E.M. 331 .....	3	0	0
**Electives .....	3	3	3
	20	20	20

\* Students who have been certified by the Department of English as proficient in English may substitute Modern Language for the courses listed.

† Or six credits in one or two of the following departments: Economics, Psychology, History, Modern Language, Sociology.

‡ Furniture Option, M.E. 341, 342, 343.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.



(For the duration of this war the following optional curricula will be superseded by the General Option.)

## MECHANICAL ENGINEERING II—FURNITURE OPTION

Assistant Professor M. R. Rowland, Faculty Adviser

The purpose of this course is to train young men, who are interested in wood industries and want a practical and scientific insight into the art of designing and production of furniture, to enter the field of actual production of modern furniture and to lay a foundation for future work as managers, or executives in the wood products industries.

The equipment of the entire Mechanical Engineering Department is available for instruction. A comprehensive file of useful data on woods, material on period design, and trade literature are also available.

The fundamental courses in the Mechanical Engineering curriculum are required in this option, with particular emphasis placed on modern manufacturing methods, management of operation, costs of production, maintenance of plant, and practical design of wood products. A thorough drill in the preparation of technical drawings and reports is required. Each student will make one or more field trips to inspect typical wood industries and submit a report of his observations.

Each student will be required to spend at least six weeks in industrial employment before receiving his degree. This aids him in securing and satisfactorily holding a position upon graduation.

### Senior Year

Freshman, Sophomore and Junior years identical with the General Mechanical Engineering Curriculum.

Summer requirement: Six weeks of industrial employment.

COURSES	CREDITS		
	First Term	Second Term	Third Term
General Economics, Econ. 201, 202, 203 .....	3	3	3
Power Plants, M.E. 401, 402, 403 .....	3	3	3
Mech. Eng. Lab. III, M.E. 407, 408, 409 .....	1	1	1
Furniture Construction, M.E. 445, 446, 447 .....	3	3	4
Lumbering, For. 422 .....	0	3	0
Lumber Seasoning, For. 423 .....	0	0	2
Engineering Economics, I.E. 301 .....	3	0	0
Elements of Electrical Engineering II, E.E. 331, 332, 333	4	4	4
**Electives .....	3	3	3
	20	20	20

All seniors are required to go on the inspection trip as part of their curriculum.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

## MECHANICAL ENGINEERING III—HEATING AND AIR-CONDITIONING OPTION

Professor E. G. Hoefer, Faculty Adviser

The Mechanical Engineering Department offers this option because of the increasing interest in heating and air conditioning for comfort; and furthermore because the engineering profession is largely responsible for the health and well-being of society through the effective construction and operation of heating and air-conditioning systems. Emphasis is placed on this phase of engineering through the application of fundamental principles to design, laboratory investigations and research. Through this means the student is given an opportunity to become familiar with standard practice in this field.

Freshman, Sophomore and Junior years identical with the General Mechanical Engineering Curriculum.

Summer requirement: Six weeks of industrial employment.

### Senior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
General Economics, Econ. 201, 202, 203	3	3	3
Power Plants, M.E. 401, 402, 403	3	3	3
Heating and Air Conditioning Lab., M.E. 455, 456, 457	1	1	1
Hydraulics Machinery, E.M. 331	3	0	0
Heating and Air Conditioning II, M.E. 451, 452, 453	3	3	3
Heating and Air Conditioning Design, M.E. 458, 459	0	3	3
Elements of Elec. Engr. II, E.E. 331, 332, 333	4	4	4
**Electives	3	3	3
	20	20	20

All seniors are required to go on the inspection trip as part of their curriculum.

## MECHANICAL ENGINEERING IV—METALS OPTION

Professor W. G. VanNote, Faculty Adviser

The Mechanical Engineer is becoming steadily more dependent upon metals and alloys for the efficient construction, operation, and maintenance of the varied engineering units under his supervision. Similarly in the design of improved and new units he is making increased demands upon the metal industry for materials of superior properties. Because of this close interdependence of mechanical engineering and metallurgy the Metals Option is offered. Emphasis is given to the control which may be exercised over the properties of metals through methods of manufacture and subsequent physical and thermal treatments. Since welding design and practice has a prominent place in the metallurgical applications made by the mechanical engineer, substantial instruction in this field is included in the option.

\*\*To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science, and Social Science.

Freshman, Sophomore and Junior years identical with the General Mechanical Engineering Curriculum.

Summer requirement: Six weeks of industrial employment.

General Economics, Econ. 201, 202, 203 .....	3	3	3
Elements of Elec. Eng., E.E. 320, 321, 322 .....	3	3	3
Electrical Engineering Lab., E.E. 325, 326, 327 .....	1	1	1
Machine Design, M.E. 411, 412, 413 .....	3	3	3
Power Plants, M.E. 401, 402 .....	3	3	0
M. E. Lab., III, M.E. 407, 408, 409 .....	1	1	1
Theory of Welding, M.E. 431, 432, 433 .....	1	1	1
Welding Practice, M.E. 435, 436, 437 .....	1	1	1
Physical Metallurgy, M.E. 441, 442, 443 .....	2	2	2
**Electives .....	3	3	3
	<u>21</u>	<u>21</u>	<u>18</u>

All seniors are required to go on the inspection trip as part of their curriculum.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science and Social Science.

## DIVISION OF TEACHER EDUCATION

### Professors:

T. E. Brown, M.A., Director of the Division

Leon E. Cook, M.S., Agricultural Education

Edward W. Boshart, M.A., Industrial Arts Education, and Guidance

J. R. Ludington, Ph.D., Industrial Arts Education

J. K. Coggin, M.S., Agricultural Education

J. Warren Smith, M.S., Industrial Education

### Associate Professors:

\*William McGehee, Ph.D., Psychology

L. O. Armstrong, M.S., Agricultural Education

### Assistant Professor:

D. J. Moffie, Ph.D., Psychology

Supervisor of Student Teachers in Industrial Arts

C. Merrill Hamilton, B.S., Industrial Arts Education

**Purposes.**—The Division of Teacher Education at State College, operating as a local Division of the Division of Teacher Education of the Greater University of North Carolina, has imposed upon it the responsibility of training teachers of Agriculture, of Trades and Industries, and of Industrial Arts. As further emphasizing the importance of the work, the State Board for Vocational Education has designated State College for training men as teachers of these subjects in white schools, and as counselors to students in choosing their vocations. Following this action, Federal appropriations to the State under the Smith-Hughes and the George-Deen Acts of Congress for such teacher training are allotted to the College.

\* On military leave.

**Organization.**—The Division offers curricula for preparing teachers of Agriculture, of Industrial Arts, of Industrial Education, and of Occupational Information and Guidance. The training includes four definite objectives. The first embraces the fundamentals of general education: English, mathematics, sociology, history, and the natural sciences—biology, geology, chemistry, and physics. Next are the technical subjects selected according to the professional course of the student: for Agricultural Teaching, in the School of Agriculture; for Industrial Arts and Industrial Education, in the School of Engineering. In the third group are the principles and methods of teaching and of vocational guidance. Educational Psychology here is obviously essential. The last objective is practical experience. To meet the requirements of the State Department of Public Instruction for teaching certificates, students, before graduation, observe and teach under the direction of the faculty of the Division in selected high schools. Moreover, experience in the respective occupations is required for those preparing to teach agriculture, and the trades and industries.

**Psychology.**—General Psychology, giving an understanding of man's reactions to individual and social forces, constitutes one of the fundamentals of liberal education. Educational Psychology, applying the general principles to the problems of instruction, learning, and character building, becomes obviously essential in the equipment of teachers. Courses in Applied, Industrial, and Social Psychology of specialized nature meet the needs of the various technological curricula. The Department of Psychology, in view of its intimate relation to the problems of teacher education, is incorporated administratively in the Division of Teacher Education; at the same time it functions instructionally throughout the Basic Division and the Professional Schools.

**Requirements for Graduation.**—For graduation in the Division of Teacher Education, the scholastic requirement in all curricula is the satisfactory attainment of at least 230 term credits with not fewer than an equal number of honor points.

Of the term credits required for graduation, a student must have at least 27 in Education, 18 in Language, 18 in the Natural Sciences, 18 in Social Science, 12 in Military Training or alternatives, 6 in Physical Education. Subjects must be taken as indicated in the several curricula.

Students who enter with advanced standing are allowed one point for each term credit accepted.

Further requirements consist of practice teaching in the subject and practical experience in the work to be taught as indicated above or under the several Departments.

**Degrees.**—Upon the satisfactory completion of one of the curricula in Education, a student is awarded the degree of Bachelor of Science with the name of his special curriculum appended: in Agricultural Education, in Industrial Arts Education, in Industrial Education, in Occupational Information and Guidance.

The Graduate Division of State College offers the Master's Degree to mature students of superior ability upon successful completion of its

requirements. For the details, see the statement of the Graduate Division in this Catalog.

### Agricultural Education

Leon E. Cook

**Object.**—Agricultural Education is designed to prepare students for positions as teachers of vocational agriculture in the high schools of the State, and to qualify as such under the provisions of the Smith-Hughes and the George-Deen Acts of Congress.

The curriculum is comprehensive in nature. It is, of course, essential that teachers have a good foundation in English and in the sciences basic to an understanding of agriculture. They should also have a sufficient understanding of the social sciences to appreciate the development of contemporary life, with the emphasis on those having to do with agriculture and the rural community. Manifestly they should have a grasp of agriculture in all phases of importance in the State, including the improvement of the farm home and of the social as well as of the economic development of the rural community. Proficiency in teaching vocational agriculture depends upon comprehensive and thorough preparation in the professional field with emphasis on personal relations and guidance, procedure in teaching both youth and adults, and in handling the various responsibilities of community service.

An adequate background of farm experience is essential for students looking forward to agricultural teaching, and experience in fields related to farming is desirable. A student should be farm-reared or should have several years of farm experience as a part of his preparation for teaching vocational agriculture.

**Placement of Graduates.**—There has been a strong demand for teachers of vocational agriculture with little difficulty in placing students who are qualified from the standpoint of personality, character, training, and farm experience. A coöperative arrangement with the supervisory staff in agricultural education of the State Department of Public Instruction facilitates the placement of students in situations adapted to their experience and training.

Successful teachers of agriculture are in demand for higher positions in the educational service and by other agencies for positions offering higher salaries than those paid in the teaching profession.

**Graduate Study.**—The Department provides opportunities for students, fully qualified, to do graduate work in Agricultural Education. Graduate students taking majors in this field should have completed the undergraduate work in Agricultural Education or the equivalent. Transfer students, or graduates in general agriculture who did not take the work in education, are required to complete 15 credits in education including Principles of Teaching and Methods of Teaching Agriculture, as prerequisites to graduate study.

## CURRICULUM FOR TEACHERS OF AGRICULTURE

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Composition, Eng. 101, 102, 103 .....	3	3	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
General Botany, Bot. 102 .....	0	4	0
General Zoology, Zool. 101 .....	4	0	0
Algebra and Trigonometry, Math. 111, 112 .....	0	4	4
Economic History, Hist. 101, 102, 103 .....	3	3	3
Physical Geology, Geol. 120 .....	0	0	4
†Military Science I, Mil. 101, 102, 103 .....	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103 .....	1	1	1
	<hr/> 17	<hr/> 21	<hr/> 21

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Farm Equipment, Agr. Eng. 202 .....	0	3	0
Soils, Soils 201 .....	5	0	0
General Economics, Econ. 201, 202 .....	3	3	0
Agricultural Economics, Agr. Econ. 202 .....	0	0	3
Physics for Agr. Students, Phys. 115 .....	0	5	0
Animal Physiology, Zool. 202, or Plant Physiology, Bot. 221 .....	0	0	5
Economic Zoology, Zool. 102 .....	0	4	0
General Botany, Bot. 101 .....	4	0	0
Introduction to Organic Chemistry, Chem. 221 .....	0	0	4
Animal Nutrition I, A.H. 202 .....	0	3	0
General Poultry, Poul. 201 .....	3	0	0
Principles of Forestry, For. 111 .....	3	0	0
General Horticulture, Hort. 203 .....	0	0	3
General Field Crops, F.C. 202 .....	0	0	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sport Activities, P.E. 201, 202, 203 .....	1	1	1
	<hr/> 21	<hr/> 21	<hr/> 21

## Junior Year

English, elective .....	3	0	3
Educational Psychology, Ed. 303, 304 .....	3	3	0
Visual Aids, Ed. 308 .....	0	0	3
Teaching Farm Shop Work, Agr. Eng. 331, 332 .....	3	3	0
Farm Management, Agr. Econ. 303 .....	0	0	3
Farm Accounting, Agr. Econ. 313 .....	0	0	3
Fertilizers, Soils 302 .....	0	3	0
Rural Sociology, Rural Soc. 302 .....	0	3	0
*Diseases of Field Crops, Bot. 301 .....	3	0	0
**Economic Entomology, Zool. 213 .....	0	0	4
***Electives .....	8	8	3
	<hr/> 20	<hr/> 20	<hr/> 19

† Or six credits in one or two of the following Departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

## Senior Year

English, elective	0	0	3
Materials and Methods in Teaching Agriculture, Ed. 412	0	5	0
Secondary Education in Agriculture, Ed. 426	0	0	3
Principles of Teaching, Ed. 406	3	0	0
Observations and Directed Teaching, Ed. 408	0	5	0
Methods of Teaching Agriculture, Ed. 407	5	0	0
Evening Classes and Directed Teaching, Ed. 411	0	5	0
****Animal Hygiene and Sanitation, A.H. 353	0	0	3
Agricultural Marketing, Agr. Econ. 411	3	0	0
***Electives	4	3	7
	15	18	16

\* Diseases of Fruits and Vegetable Crops, Bot. 303, may be substituted for Bot. 301.

\*\* General Bacteriology, Bot. 402, or Genetics, Zool. 411, may be substituted for Economic Entomology, Zool. 213.

\*\*\* Options and electives except Mil. Science III and IV must be chosen with the approval of the adviser.

\*\*\*\* Common Diseases, A.H. 352, may be substituted for A.H. 353.

† Or six credits in one or two of the following Departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology, and Ethics and Religion.

## INDUSTRIAL ARTS EDUCATION

John R. Ludington

Industrial Arts comprises that area of study and experience which deals with industry as a unit of society and the manner in which industry and its related materials, processes, and problems affects and has affected other units of society. For many years North Carolina State College has had an important part in aiding individuals and groups of individuals to cope with the increasingly complex problems of living in an industrial society through its program of teacher education.

The demand for competent teachers of Industrial Arts has increased year after year and the need for Industrial Arts as an essential phase of general education at the elementary and secondary school levels is being realized by progressive school communities and leaders in education.

Purposes.—The Department of Industrial Arts is organized to aid in the education of teachers and supervisors of Industrial Arts, and to provide experiences for those individuals who desire to deal more appreciatively and effectively with problems of living in a democratic-industrial society. The successful completion of this curriculum leads to the granting of the degree of Bachelor of Science in Industrial Arts Education and the fulfillment of requirements for an A-grade certificate for teaching in this field.

The first two years of work in this curriculum are in line with the Basic Division of the College, which emphasizes work of a general and foundational nature. The junior and senior years are planned to include experiences of a specialized-professional nature.

In addition to added faculty personnel, new facilities have been provided in the Department which include: laboratories, machines, tools, benches, classrooms, and library resources. Further increases in physical setting and equipment have been planned which will make North Carolina State College one of the leading Industrial Arts teacher-education centers in the Southeast.

**Graduate Program.**—Opportunities are provided for students of demonstrated interest and ability to do graduate work leading to the Master's Degree. The faculty personnel and resources of the Greater University of North Carolina are used in planning a sequence of experiences on the graduate level to meet the individual interests and needs of persons interested in Industrial Arts Education. Persons interested in graduate work in this field are invited to write for detailed information and courses offered.

## DIVISION OF TEACHER EDUCATION CURRICULUM FOR TEACHERS OF INDUSTRIAL ARTS

### Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Composition, Eng. 101, 102, 103	3	3	3
Algebra, Trigonometry, and Mathematics of Finance			
Math. 111, 112, 113	4	4	4
General Chemistry, Chem. 101, 102, 103 or			
Optional Science	4	4	4
Industrial Arts Drawing, Ed. (I. A.) 105a, b, c	3	3	3
Industrial Arts, Ed. (I. A.) 106 a, b, c	3	3	3
Military Science I, Mil. 101, 102, 103 or			
World History, Hist. 104	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

### Sophomore Year

Business English, Eng. 211, Public Speaking, Eng. 231,			
Elective English	3	3	3
General Physics, Phys. 105, 106, 107	4	4	4
Economic History, Hist. 101, 102, 103	3	3	3
Industrial Arts Design, Ed. (I. A.) 205	0	0	3
General Sociology, Soc. 202, 203	3	3	0
Laboratory Problems in Industrial Arts,			
Ed. 206 (I. A.) a, b, c	3	3	3
†Military Science II, Mil. 201, 202, 203	2	2	2
Sports Activities, P.E. 201, 202, 203	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

### Junior Year

Introduction to Psychology, Psychol. 200, Educational			
Psychology, Ed. 304, Psychology of Adolescence,			
Ed. 476	3	3	3
General Economics, Econ. 201, 202, 203	3	3	3
Problems in Secondary Education, Ed. 344, Field Work			
in Secondary Education, Ed. 433, Visual Aids, Ed.			
308	3	3	3
Laboratory Problems in Industrial Arts,			
Ed. 306 (I. A.) a, b, c	3	3	3
Business Law, Econ. 307	3	0	0
**Electives	3	3	3
*Electives in Related Technical and Shop Courses	3	5	3
	<u>21</u>	<u>20</u>	<u>18</u>



## Senior Year

Methods of Teaching Industrial Ed. 422, Observation and Directed Teaching, Ed. 444 .....	3	3	3
Labor Problems, Econ. 331, Vocational Guidance, Ed. 420 .....	3	3	0
Occupational Studies, Ed. 424 .....	0	0	3
Curriculum Problems in Industrial Arts, Ed. 482, Instructional Aids and Devices, Ed. 483, Laboratory Planning and Equipment Selection, Ed. 484 .....	3	3	3
**Electives .....	3	3	3
*Electives in Related Technical and Shop Courses .....	6	6	6
	<hr/> 18	<hr/> 18	<hr/> 18

\* Electives to be selected with aid of adviser to meet special needs of individual students.

† Or six credits in one or two of the following departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology, and Ethics and Religion.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science and Social Science.

## OCCUPATIONAL INFORMATION AND GUIDANCE

Edward W. Boshart

**Objective.**—Guidance is becoming a more important part of the preparation for the high office of teaching. Pupils of all ages are in need of assistance in meeting all sorts of life problems, such as those of education, vocation, health, and emotional stability. Each level of school development—elementary, junior, high, senior high, and college—requires particular attention in which the teacher's advice is essential. In addition to the work of the classroom teacher, there is need of continued service in the form of general direction in supplying needed materials, suitable programs, general oversight of plans, and care of special cases requiring the attention of one with wide experience.

Through subject matter courses, including exploration, tests and measurements, the requirements of various trades, occupations, and professions, State College is endeavoring to prepare individuals to become teachers of occupational information and to serve as counselors of students in leading them through their choice of studies and vocational interests toward successful and happy living. It is essential that counselors have an adequate background of teaching experience, as well as acquaintance with occupational problems; therefore, it is essential to the preparation of individuals for this work that they qualify to teach classes in occupations as related to the world about them, and thereby develop themselves for the position of counselors and directors of this work.

**Organization.**—The courses selected for this curriculum have as their objective the broadening of experience and acquaintance with the whole field of education and will lead toward the degree of Bachelor of Science in Occupational Information and Guidance. Throughout this period of preparation the emphasis will be on a thorough acquaintance with the work outlined, together with a selected minor in social sciences or natural sciences.

The first two years of this curriculum are in line with the general plan of the College which emphasizes work of fundamental value. The last two years are given to work of a professional and specialized nature stressing analysis of occupations and trades, guidance programs, organization and administration.

**Placement of Graduates.**—There is a growing demand for teachers of occupational information and guidance. In a few instances the full time of one or more instructors will be taken up in giving occupational information and performing other guidance functions. In the smaller schools where the full time is not thus used, the teacher will be required to hold other classes and should be prepared in some related field.

**Graduate Study.**—This Department offers opportunity for those who have had experience in teaching to prepare for a position as counselor or director of guidance. This study leads toward the earning of the degree of

Master of Science in Education and may be accomplished through a year or more in residence or through the offerings of our Summer School Sessions. A prerequisite for work in the graduate field should be one or more years of teaching experience, a particular interest in the field, and a rather wide acquaintance with social and economic problems.

## CURRICULUM FOR TEACHERS OF OCCUPATIONAL INFORMATION AND GUIDANCE

### Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Composition, Eng. 101, 102, 103 .....	3	3	3
Algebra, Trigonometry, Mathematics of Finance, Math. 111, 112, 113 .....	4	4	4
Science (selected with aid of adviser) .....	4	4	4
Economic History, Hist. 101, 102, 103 .....	3	3	3
Occupations, Ed. 103 .....	0	0	3
General Sociology, Soc. 202, 203 .....	3	3	0
Military Science I, Mil. 101, 102, 103 or World History, Hist. 104 .....	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103 .....	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

### Sophomore Year

Business English, Eng. 211, Public Speaking, Eng. 231, Elective English .....	3	3	3
Science (selected with aid of adviser) .....	4	4	4
General Economics, Econ. 201, 202, 203 .....	3	3	3
History of United States, Hist. 201, 202, 203 .....	3	3	3
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sports Activities, P.E. 201, 202, 203 .....	1	1	1
**Electives .....	3	3	3
	<u>19</u>	<u>19</u>	<u>19</u>

### Junior Year

English or Modern Language .....	3	3	3
Introduction to Psychology, Psychol. 200, Educational Psychology, Ed. 304, Psychology of Adolescence, Ed. 476 .....	3	3	3
Problems in Secondary Education, Ed. 344, Field Work in Secondary Education, Ed. 433, Visual Aids, Ed. 308 .....	3	3	3
†American Government, Pol. Sci. 200, 201, 202 .....	3	3	3
**Electives .....	3	3	3
*Electives .....	6	5	3
	<u>21</u>	<u>20</u>	<u>18</u>

### Senior Year

Methods of Teaching Occupations, Ed. 423 .....	3	0	0
Observation and Directed Teaching, Ed. 444 .....	0	3	3
Philosophy of Guidance, Ed. 420 .....	3	0	0
Social Recreation, P.E. 401 .....	0	0	3
Psycho-diagnostic Techniques, Psy. 470, 471, 472 .....	3	3	3
Occupational Studies, Ed. 424 .....	0	0	4
**Electives .....	3	3	3
*Electives in related courses .....	6	9	3
	<u>18</u>	<u>18</u>	<u>18</u>

\* Electives to be selected with aid of adviser to meet special needs of individual student.

† Political Science 203 may alternate with Political Science 200.

‡ Or six credits in one or two of the following departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology, and Ethics and Religion.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science and Social Science.

## Industrial Education

J. Warren Smith

**Object.**—In a greater degree than at any previous time, thought is now directed toward an extended program of trade-shop courses in Industrial Education for North Carolina high schools. Some of the causes of this focus of attention are: increased production for War purposes, rising age for entrance to work, increasing school enrollment, and an extended school term. It is to prepare teachers for this field of service that this program is designed. A four-year course is outlined with the first two years running parallel with that of Industrial Arts, then specializing by following the outlined course during the last two years.

**Positions for Graduates.**—The student who completes this course will be prepared to teach in the all-day schools or the part-time or the evening classes, such as are supported by State and Federal funds for vocational education. At the present time, little difficulty should be encountered by the successful candidates in attaining positions after graduation.

**Journeyman Experience Required.**—Candidates for degrees must have had at least two years of successful journeyman experience in the trade they wish to teach. Successful completion of this course leads to the degree of Bachelor of Science in Industrial Education. Men with journeymen experience who desire to take only professional courses, may enter as special students with the object of completing one or two years of training as outlined for the junior and senior years. For this work, no degree would be granted.

This Department is recognized as the official Training Department of Industrial Education for the State Department of Education. The head of the Department serves as itinerant teacher-trainer for part-time, day-trade, and evening classes, and for the preparation of prospective teachers.

For the time being, the services of the Head of this Department will be devoted largely to itinerant-teacher training. However, as the demand for resident courses at State College designed to prepare shop teachers develops, the schedule can be adjusted to meet this demand.

## CURRICULUM FOR TEACHERS OF INDUSTRIAL EDUCATION

For freshman and sophomore years, see Industrial Arts Education

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Philosophy of Industrial Education, Ed. 427 .....	0	3	0
*Shopwork (selected) .....	3	3	3
Introduction to Psychology, Psychol. 200, Educational Psychology, Ed. 304, Psychology of Adolescence, Ed. 476 .....	3	3	3
Philosophy of Guidance, Ed. 420 .....	0	0	3
Problems in Secondary Education, Ed. 344 .....	3	0	0
Labor Problems, Econ. 331 .....	3	0	0
General Sociology, Soc. 202, 203 .....	3	3	0
Visual Aids, Ed. 308 .....	0	0	3
Mechanical Drawing, M.E. 211, 212, 213 .....	2	2	2
**Electives .....	3	3	3
Electives .....	0	3	2
	<u>20</u>	<u>20</u>	<u>19</u>

## Senior Year

Local Survey: Planning a Program, Ed. 416 .....	0	3	0
*Shopwork (selected) .....	0	3	0
Methods of Teaching Industrial Subjects, Ed. 422 .....	3	0	0
Observation and Directed Teaching, Ed. 444 .....	0	3	3
Occupational Studies, Ed. 424 .....	0	0	3
Curriculum Problems in Industrial Arts, Ed. 482, In- structional Aids and Devices, Ed. 483, Laboratory Planning and Equipment Selection, Ed. 484 .....	3	3	3
***Elective courses in Design .....	3	3	3
**Electives .....	3	3	3
Electives .....	5	0	3
	<u>17</u>	<u>18</u>	<u>18</u>

\* Elective shopwork should be taken in fields available as Textiles, Woodshop, Machine Shop, Foundry, and Electricity.

\*\* To be selected from the following fields: Humanities, Military Science III and IV, Language and Literature, Pure Mathematics, Pure Natural Science and Social Science.

\*\*\* Elective courses must be approved by the faculty adviser.

## THE TEXTILE SCHOOL

Thomas Nelson, Dean and Director of Textile Research

**Organization.**—The Textile School of North Carolina State College is organized for the purpose of administration into four departments: Yarn Manufacturing and Knitting, Weaving and Designing, Textile Chemistry and Dyeing, Textile Research.

The Textile School is organized to offer technical instruction, both undergraduate and graduate, in the production and finishing of textile products. It is also organized and equipped to conduct fundamental textile research and coöperates with the School of Agriculture, and with the United States Institute for Textile Research in efforts to improve and develop new uses for cotton and other textile fibres.

**Purpose.**—The purpose of the Textile School is to educate men for professional service in Textile Manufacturing, Textile Management, Textile Chemistry and Dyeing, in Yarn Manufacturing, in Knitting, Weaving and Designing; to develop their capacities for intelligent leadership; to equip them to participate in commercial and public affairs; to aid in the development of the textile industry and its commerce through research and experimentation; to coöperate with the textile mills of the State in gaining, through scientific research, information that will improve the quality and value of manufactured products and increase technical skill.

**Occupations.**—Never before in America have more opportunities in textiles been offered to young people of North Carolina and the South generally than are available today to graduates of the Textile School.

North Carolina is the largest textile manufacturing State in the South; it has more mills than any other State in America. It has the largest towel, damask, denim, and underwear mills in America; and it has more mills that dye and finish their own products than any other Southern State, also a large printing industry. These plants produce a diversified line of cotton, rayon, silk, wool, and worsted textile products.

The courses of instruction are arranged and grouped so that students may get the best results from their work, and accumulate the necessary knowledge, which, together with actual experience after graduation, enables them to fill such positions as the following:

Owners of mills.

Presidents and vice-presidents of mills and other textile establishments.

Secretaries and treasurers of mills.

Managers, superintendents, and department foremen in cotton, rayon, woolen, silk, and hosiery mills.

Superintendents and foremen in mercerizing, bleaching, dyeing, and finishing plants.

Designers and analysts of fabrics.

Technical demonstrators in the dyestuff industry.

Textile chemists.

Textile cost accountants in mills.

Purchasing agents for mills.

Salesmen of machinery, yarn, cloth, rayon, dyestuffs, and chemicals.

Positions in yarn and fabric commission houses and with fabric converters.

Specialists in Government service.

Representatives for manufacturers of machinery, rayon, dyestuffs, and mill supplies.

Degrees.—Upon the completion of any one of the curricula in Textiles the degree of Bachelor of Science in Textiles is conferred.

The degree of Master of Science in Textiles is offered for the satisfactory completion of one year of graduate study in residence. Candidates for the degree of Master of Science in Textiles enter and are enrolled in the Graduate Division of the College.

The professional degree of Master of Textiles may be conferred upon graduates of the Textile School after five years of professional practice in charge of important work and upon the acceptance of a satisfactory thesis.

Requirements.—The requirements for graduation in the Textile School are the satisfactory completion of all the courses in one of the prescribed curricula on the pages following, a total of not fewer than 230 term credits, with not fewer than 230 honor points.

Of the minimum of 230 term credits required for graduation in the Textile School, 144 are common to all curricula; that is, 12 term credits in Mathematics, 18 in Language, 27 in Economics and Psychology, 12 in Chemistry, 15 in Physics, 12 in Engineering, 6 in Agriculture, 24 in General Textile, 12 in Military Training or Social Science alternatives, and 6 in Physical Education. Each of the curricula permits election of 18 term credits.

Inspection Trip.—Each student is required to make an inspection trip during his senior year to mills making various classes of fabrics, also to bleaching, dyeing, finishing, and hosiery plants. The trips are made in chartered busses.

Curricula.—The freshman and sophomore work is the same for all students in the Textile School. The training is general, and gives the student a good opportunity to make a wise choice in the selection of the particular field in which he desires to specialize. Five curricula are offered.

- |                          |                                 |
|--------------------------|---------------------------------|
| 1. Textile Manufacturing | 3. Textile Chemistry and Dyeing |
| 2. Textile Management    | 4. Weaving and Designing        |
| 5. Yarn Manufacturing    |                                 |

Textile Manufacturing and Textile Management offer work in all Departments of the Textile School; these are therefore general curricula with one placing more emphasis on manufacturing, the other, more emphasis on economics.

Students who select Textile Chemistry and Dyeing, Weaving and Designing, or Yarn Manufacturing devote a larger percentage of their time to specialization in one Department of the Textile School.

**Textile Curricula for University and College Graduates.** Selected courses leading to the degree Bachelor of Science in Textiles are offered to graduates of universities and standard colleges. These are arranged in accordance with the vocational aim of the individual student and in the light of credits presented from the institution by which the student has been graduated, subject to the approval of his adviser and the director of instruction. In cases where the student presents enough credits which may be used for courses required in his curriculum, he may be graduated B.S. in Textiles within one year. In no case should it take more than two years to complete the work for the degree.

**Short Course for Textile Mill Men.**—Instruction in yarn manufacturing, weaving, designing, fabric analysis, and dyeing, lasting two weeks in the second term, is offered for textile mill men who wish to make a short and intensive study of any of these subjects. The subject matter will be selected to suit the requirements of each individual.

### Yarn Manufacturing and Knitting

Professor J. T. Hilton, Head of the Department

Associate Professor J. G. Lewis;\* Assistant Professor G. R. Culberson

**Purpose.**—The purpose of this Department is to instruct students in the theory and practice of producing yarns and hosiery; to cooperate with mills in solving manufacturing problems through research and experimentation; and to manufacture the yarns used in the weave room. This Department is located on the top of the Textile Building.

**Opening and Picking.**—The opening and picking equipment is placed in a separate room and consists of bale breaker, vertical opener, C.O.B. and condenser, breaker picker, and finisher lapper.

**Carding and Spinning.**—This equipment occupies two rooms. The larger one is used for instruction. The machinery consists of cards, regular and controlled-draft drawing frames, fly frames, spinning frames, warper, spooler, winders, regular and fancy twistors, and a complete unit of combing machinery for the production of fine yarns. The smaller room contains a complete unit of carding and spinning machinery, including several types of long-draft spinning; it is used as an experimental laboratory. Thus student instruction and experimental work do not conflict. Both rooms are equipped with Parks-Cramer humidifiers.



**Woolen.**—This equipment, placed in a separate room on the basement floor, consists of a complete woolen unit made by Davis and Furber, and a Universal winder.

**Knitting.**—This department is equipped with a variety of circular knitting machines for making children's hose, ladies' hose, and men's plain and fancy half hose. It is also equipped with a Wildman single head, single unit full-fashioned hosiery machine, Merrow sewing machine, loopers, bottle bobbin winder, Universal winder and balances.

**Research Laboratory.**—This laboratory contains a single strand tester, Mullen tester, yarn and cloth testing machines with autographic recorder, twist counter, crimp tester, conditioning oven, and other necessary apparatus to test cotton and rayon yarns and fabrics for moisture content, twist and tensile strength.

The curriculum in Yarn Manufacture is listed with the other Textile curricula.

### Weaving and Designing

Professor T. R. Hart, Head of the Department

\*Professor W. E. Shinn; \*Assistant Professor J. A. Porter, Jr.

Instructor, W. E. Moser

**Purpose.**—The purpose of this Department is to instruct students in the theory and practice of weaving and designing fabrics ranging from simple print cloths to elaborate leno and jacquard creations, to cooperate with the home economics department of North Carolina colleges in creating consumer interest in textile products, to cooperate with mills in solving manufacturing problems through research and experimentation. This Department is located on the second floor of the Textile Building.

**Weave Room.**—This room contains a larger variety of looms than can be found in any textile mill. These have been carefully selected so that the students may obtain a knowledge of the different cotton, rayon, and silk looms made in the United States. It also contains looms to produce such fabrics as print cloths, sheetings, denims and twill fabrics, ginghams, fancy shirtings, dress goods, and plush, as well as fancy leno and jacquard fabrics. The weave room has been modernized so that the students can be trained in the technique of manufacturing fancy cotton, rayon, and combination fabrics on automatic, dobby, and jacquard looms. Other equipment in the weave room includes Universal filling winders, braiders and Bahnson humidifiers.

**Warp Preparation.**—Short warps in the Textile School are made on the silk and rayon equipment in this department, which consists of a silk and rayon skein winder, and a combination warper and beamer. Other equipment includes a slasher and cotton beaming frame.

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\* On military leave.

**Designing and Fabric Analysis.**—A full equipment of design boards for single and double cloths is provided in the classrooms. Dies for cutting samples and different makes of balances, and microscopes are provided for the analysis of fabrics. Other designing equipment includes an enlarging camera, card cutting pianos and card lacing equipment.

The curriculum in Weaving and Designing is listed with the other Textile curricula.

### Textile Chemistry and Dyeing

Professor A. H. Grimshaw, Head of the Department

Assistant Professor A. C. Hayes

**Purpose.**—The purpose of this Department is to instruct students in the theory and practice of dyeing, printing, and finishing yarns and fabrics; to conduct experiments; to coöperate with the mills of the State in solving problems relating to the dyeing and finishing of textile products; to dye the yarns used in the weave room to produce fabrics. This Department is located on the basement floor of the building.

**Equipment.**—The Dye Laboratory is fitted up with work tables, balances, steam baths, drying oven, and other apparatus for experimental dyeing, dye testing, color matching, and the testing of dyed samples by acids and alkalis. It also contains roller, spray, and screen printing apparatus.

The Dye House is equipped with kier; raw stock, package, skein, and hosiery dyeing machines; a cloth dyeing machine of the creel type; hydro-extractor; raw stock dryer and other equipment needed in the dyeing of larger quantities of material and in giving instruction in boiling out, bleaching, and dyeing raw stock, skeins, warps, hosiery, and piece goods.

The Research Laboratory contains microscopes, photo-micrographic cameras and projector, fadeometer, pH apparatus, viscosimeters, extractors, separator, analytical balances, electric oven, equipment for testing oil and finishing compounds, as well as the analytical equipment generally used by textile chemists. It also contains a dark room fully equipped for photographic work.

The curriculum in Textile Chemistry and Dyeing is listed with the other Textile curricula.

### Textile Research

Thomas Nelson, Director

For a number of years the Division of Cotton Marketing, United States Department of Agriculture, stationed a representative at the Textile School to coöperate in producing new uses for cotton. Consumer packages for farm products, cotton fabrics for road making, cotton bagging, foundation fabrics for hooked rugs, and cotton bagging for sugar were some of the products of this coöperative arrangement.

The United States Institute for Textile Research has selected the Textile School as the location for its research project on warp sizing of spun rayon and cotton-spun rayon combination yarns.

The Textile School staff devotes considerable time each year to problems submitted to the School by mills.

The equipment available for research is listed under the Departments.

## CURRICULUM IN TEXTILE MANUFACTURING

## \*Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Composition, Eng. 101, 102, 103 .....	3	3	3
Physics for Textile Students, Phys. 111, 112, 113 .....	4	4	4
Algebra, Trigonometry, Mathematics of Finance, Math. 111, 112, 113 .....	4	4	4
Shopwork, M.E. 121, 122, 123 .....	1	1	1
Engineering Drawing I, M.E. 101, 102, 103 .....	2	2	2
Textile Principles Lab., Tex. 101, 102, 103 .....	1	1	1
Yarn Calculations, Tex. 104 .....	0	1	0
Cloth Calculations, Tex. 131 .....	0	0	2
Military Science I, Mil. 101, 102, 103 or World History, Hist. 104 .....	2	2	2
Fundamental Activities and Hygiene, P.E. 101, 102, 103 .....	1	1	1
	18	19	20

## \*Sophomore Year

Economic History, Hist. 101, 102, 103 .....	3	3	3
Decorative Drawing, Arch. 106, or Light in Industry, Phys. 311 .....	3	0	0
Light in Industry, Phys. 311, or Decorative Drawing, Arch. 106 .....	0	0	3
General Inorganic Chemistry, Chem. 101, 102, 103 .....	4	4	4
Cotton, Cotton Classing II, F.C. 201, 212 .....	3	3	0
Yarn Manufacture I, Tex. 201, 203, 205 .....	1	0	4
Power Weaving, Tex. 231, 232, 234 .....	1	3	0
Fabric Structure and Analysis, Tex. 236, 237 .....	0	2	2
Knitting I, Tex. 207, 208, 209, 211 .....	3	1	1
†Military Science II, Mil. 201, 202, 203 .....	2	2	2
Sports Activities, P.E. 201, 202, 203 .....	1	1	1
	21	19	20

## Junior Year

English or Modern Language .....	3	3	3
General Economics, Econ. 201, 202, 203 .....	3	3	3
Textile Calculations I, Tex. 345 .....	0	0	3
Yarn Manufacture II, Tex. 301, 302, 303, 304 .....	1	4	1
Dobby Weaving, Tex. 331, 332, 333, 335 .....	1	1	4
Fabric Design and Analysis I, Tex. 341, 342 .....	3	3	0
Dyeing I, Tex. 371, 372, 373, 375 .....	4	1	1
Fabric Testing, Tex. 343 .....	0	0	1
Electives .....	3	3	3
	18	18	19

## Senior Year

Industrial Management, Personnel Management, Econ. 325A, 326A, 333 .....	3	3	3
**Introduction to Psychology, Psychol. 200 .....	3	0	0
**Applied Psychology, Psychol. 302 .....	0	3	0
**Industrial Psychology, Psychol. 338 .....	0	0	3
Yarn Manufacture IV, Tex. 401, 402, 403, 405 .....	4	1	1
Leno Design, Tex. 441 .....	3	0	0
Dobby Design, Tex. 443 .....	0	3	0
Jacquard Design, Tex. 445 .....	0	0	3
Cotton and Rayon Weaving, Tex. 431, 432, 435 .....	1	1	3
Cotton and Rayon Dyeing I, Tex. 471, 472, 473, 474 .....	1	4	1
Fabric Analysis, Tex. 451, 452 .....	2	2	0
Textile Microscopy I, Tex. 475 .....	0	0	1
Electives .....	3	3	3
	20	20	18

\* Freshman and sophomore years for all Textile curricula.

† Or six credits in one or two of the following departments: Economics, Psychology, History and Political Science, Modern Languages, Sociology.

\*\* Principles of Accounting, Econ. 301, 302, 303, may be substituted for Psychology 200, 302, 338.

## CURRICULUM IN TEXTILE CHEMISTRY AND DYEING

The freshman and sophomore years are the same as for Textile Manufacturing.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English or German .....	3	3	3
General Economics, Econ. 201, 202, 203 .....	3	3	3
Introduction to Psychology, Psychol. 200, or Textile course .....	0	0	3
Qualitative and Quantitative Analysis, Chem. 211, 212, 223 .....	4	4	4
Dyeing II, Tex. 377, 378, 379, 381, 382 .....	5	5	2
Fabric Testing, Tex. 343 .....	0	0	1
Electives .....	3	3	3
	18	18	19

## Senior Year

Industrial Management, Personnel Management, Econ. 325A, 326A, 333 .....	3	3	3
Organic Chemistry, Chem. 421, 422, 423 .....	4	4	4
Applied Psychology, Psychol. 302, or Textile course .....	0	3	0
Industrial Psychology, Psychol. 338, or Textile course .....	0	0	3
Textile Microscopy II, Tex. 459, 490 .....	1	1	0
Textile Printing, Tex. 483, 484, 485, 487 .....	4	1	1
Cotton and Rayon Dyeing II, Tex. 477, 478, 479, 480, 481 .....	2	5	5
Electives .....	6	3	3
	20	20	19

## CURRICULUM IN YARN MANUFACTURING

The freshman and sophomore years are the same as for Textile Manufacturing.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English or Modern Language .....	3	3	3
General Economics, Econ. 201, 202, 203 .....	3	3	3
Accounting I, Econ. 301, 302 .....	3	3	0
Yarn Manufacturing III, Tex. 310, 311 .....	0	3	3
Yarn Manufacturing Lab. III, Tex. 307, 308, 309 .....	2	2	2
Dobby Weaving, Tex. 331, 332, 333, 335 .....	1	1	4
Dyeing I, Tex. 371, 372, 373, 375 .....	4	1	1
Electives .....	3	3	3
	19	19	19

## Senior Year

Industrial Management, Personnel Management, Econ. 325A, 326A, 333 .....	3	3	3
Introduction to Psychology, Psychol. 200 .....	3	0	0
Applied Psychology, Psychol. 302 .....	0	3	0
Industrial Psychology, Psychol. 338 .....	0	0	3
Machine Shop II, M.E. 227, 228, 229 .....	1	1	1
Elements of Electrical Engineering I, E.E. 321, 322 .....	0	3	3
Textile Calculations II, Tex. 413 .....	3	0	0
Yarn Manufacturing V, Tex. 407, 408, 409, 411, 412 .....	5	5	2
Manufacturing Problems, Tex. 415 .....	0	0	3
Electives .....	6	3	3
	21	18	18

## CURRICULUM IN TEXTILE MANAGEMENT

The freshman and sophomore years are the same as for Textile Manufacturing.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English or Modern Language .....	3	3	3
Accounting I, Econ. 301, 302, 303 .....	3	3	3
General Economics, Econ. 201, 202, 203 .....	3	3	3
Yarn Manufacture II, Tex. 301, 302, 303, 304 .....	1	4	1
Textile courses .....	5	2	5
Electives .....	3	3	3
	<u>18</u>	<u>18</u>	<u>18</u>

## Senior Year

Industrial Management, Personnel Management, Econ. 325A, 326A, 333 .....	3	3	3
Marketing Methods and Sales Management, Econ. 311, 312, 313 .....	3	3	3
Introduction to Psychology, Psychol. 200 .....	3	0	0
Applied Psychology, Psychol. 302 .....	0	3	0
Industrial Psychology, Psychol. 338 .....	0	0	3
Textile courses .....	8	8	7
Electives .....	3	3	3
	<u>20</u>	<u>20</u>	<u>19</u>

Textile courses to be selected from:

Fabric Design and Analysis I, Tex. 341, 342 .....	3	3	0
Dobby Weaving, Tex. 331, 332, 333, 335 .....	1	1	4
Dyeing, Tex. 371, 372, 373, 375 .....	4	1	1
Textile Calculations, 345 or 413 .....	3	or	3
Yarn Manufacture IV, Tex. 401, 402, 403, 405 .....	4	1	1
Leno Design, Tex. 441 .....	3	0	0
Dobby Design, Tex. 443 .....	0	3	0
Jacquard Design, Tex. 445 .....	0	0	3
Calculating Fabric Costs, Tex. 344 .....	0	3	0
Cotton and Rayon Weaving, Tex. 431, 432, 435 .....	1	1	3
Cotton and Rayon Dyeing, Tex. 471, 472, 473, 474 .....	1	4	1
Fabric Analysis, Fabric Testing, Tex. 451, 452, 343 .....	2	2	1
Manufacturing Problems, Tex. 415 .....	0	0	3
Color in Woven Design, Tex. 455, 456 .....	3	3	0
Wool Manufacture, Tex. 416, 417, 418 .....	1	4	0
Textile Microscopy I, Tex. 475 .....	0	0	1

## CURRICULUM IN WEAVING AND DESIGNING

The freshman and sophomore years are the same as for Textile Manufacturing.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English or Modern Language .....	3	3	3
General Economics, Econ. 201, 202, 203 .....	3	3	3
Appreciation of Fine Arts, Arch. 111, 112, or Textile courses .....	3	3	0
Textile Calculations I, Tex. 345 .....	0	0	3
Fabric Design and Analysis I, Tex. 341, 342 .....	3	3	0
Jacquard Design, Tex. 445 .....	0	0	3
Dobby Weaving, Tex. 335, 337, 338, 339 .....	2	2	5
Fabric Testing, Tex. 343 .....	0	0	1
Electives .....	3	3	3
	17	17	21

## Senior Year

Industrial Management, Personnel Management, Econ. 325A, 326A, 333 .....	3	3	3
Introduction to Psychology, Psychol. 200 .....	3	0	0
Applied Psychology, Psychol. 302 .....	0	3	0
Industrial Psychology, Psychol. 338 .....	0	0	3
Leno Design, Tex. 441 .....	3	0	0
Dobby Design, Tex. 443 .....	0	3	0
Fabric Design and Analysis II, Tex. 453 .....	0	0	3
Jacquard Design Laboratory, Tex. 447, 448, 449 .....	1	1	1
Cotton Rayon Weaving, Tex. 435, 437, 438, 439 .....	2	2	4
Color in Woven Design, Tex. 455, 456 .....	3	3	0
Fabric Analysis, Tex. 451, 452 .....	2	2	0
Textile Microscopy I, Tex. 475 .....	0	0	1
Electives .....	3	3	3
	20	20	18

The Graduate School of the University of  
North Carolina

STATE COLLEGE DIVISION

William Whatley Pierson, Jr., Dean, Chapel Hill  
Zeno Payne Metcalf, Director of Graduate Studies at State College

GRADUATE FACULTY

Professors

D. B. Anderson, Ph.D.	Botany
L. D. Bayer, Ph.D.	Agronomy
E. W. Boshart, M.A.	Teacher Education
T. E. Browne, M.A.	Teacher Education
W. H. Browne, Jr., B.E.	Electrical Engineering
*J. D. Clark, M.A.	English
J. K. Coggin, M.S.	Teacher Education
L. E. Cook, M.S.	Teacher Education
Gertrude M. Cox, M.S.	Experimental Statistics
R. W. Cummings, Ph.D.	Agronomy
R. S. Dearstyne, M.S.	Poultry
J. B. Derieux, Ph.D.	Physics
*H. A. Fisher, LL.D.	Mathematics
G. W. Forster, Ph.D.	Agricultural Economics
R. S. Fouraker, M.S.	Electrical Engineering
B. B. Fulton, Ph.D.	Entomology
M. E. Gardner, B.S.	Horticulture
A. F. Greaves-Walker, D.Sc.	Ceramic Engineering
A. H. Grimshaw, M.S.	Textile Chemistry
F. M. Haig, M.S.	Animal Husbandry
C. H. Hamilton, Ph.D.	Rural Sociology
*T. P. Harrison, Ph.D., LL.D.	English
T. R. Hart, M.S.	Textiles
*L. C. Hartley, Ph.D.	English
C. M. Heck, M.A.	Physics
J. T. Hilton, M.S.	Textiles
*L. E. Hinkle, D.S. es L.	Modern Language
E. G. Hoefer, M.E.	Mechanical Engineering
J. V. Hofmann, Ph.D.	Forestry
E. H. Hostetler, M.S.	Animal Husbandry
*A. I. Ladu, Ph.D.	English
B. E. Lauer, Ph.D.	Chemical Engineering
M. C. Leager, Ph.D.	Accounting and Statistics
J. E. Lear, E.E.	Electrical Engineering
S. G. Lehman, Ph.D.	Botany

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\* Humanities group advisory and minors only.

J. F. Lutz, Ph.D.	Soils
C. L. Mann, C.E.	Civil Engineering
G. K. Middleton, Ph.D.	Agronomy
T. B. Mitchell, D.Sc.	Zoölogy
Thomas Nelson, D.Sc.	Textiles
E. E. Randolph, Ph.D.	Chemical Engineering
R. B. Rice, A.M.	Experimental Engineering
R. H. Ruffner, M.S.	Animal Husbandry
G. H. Satterfield, M.A.	Chemistry
H. E. Satterfield, M.E.	Mechanical Engineering
H. B. Shaw, A.M.	Industrial Engineering
Luther Shaw, Ph.D.	Botany
W. E. Shinn, M.S.	Textiles
G. W. Smith, D.Sc.	Engineering Mechanics
R. O. Stevens, M.S.	Zoölogy
J. L. Stuckey, Ph.D.	Geology
B. R. Van Leer, M.S.	Civil Engineering
L. L. Vaughn, M.E.	Mechanical Engineering
B. W. Wells, Ph.D.	Botany
L. F. Williams, Ph.D.	Chemistry
A. J. Wilson, Ph.D.	Chemistry
Sanford Winston, Ph.D.	Sociology
L. Wyman, M.F.	Forestry

### Associate Professors

C. H. Bostian, Ph.D.	Zoölogy
C. R. Bramer, E.M.	Civil Engineering
R. R. Brown, M.S. in E.E.	Electrical Engineering
*R. C. Bullock, Ph.D.	Mathematics
*J. W. Cell, Ph.D.	Mathematics
J. M. Clarkson, Ph.D.	Experimental Statistics
E. R. Collins, Ph.D.	Agronomy
N. W. Conner, M.S.	Engineering Mechanics
*A. M. Fountain, Ph.D.	English
R. E. L. Greene, Ph.D.	Agricultural Economics
R. Harkema, Ph.D.	Zoölogy
P. H. Harvey, Ph.D.	Agronomy
F. W. Lancaster, B.S. in Ch.E.	Physics
*J. Levine, Ph.D.	Mathematics
J. R. Ludington, Ph.D.	Industrial Arts Education
F. H. McCutcheon, Ph.D.	Zoölogy
W. McGehee, Ph.D.	Psychology
W. D. Miller, Ph.D.	Forestry
*C. G. Mumford, Ph.D.	Mathematics

\* Humanities group advisory and minors only.



*E. H. Paget, M.A. ....	English
J. A. Rigney, M.S. ....	Agronomy
I. V. Shunk, Ph.D. ....	Botany
J. W. Smith, M.S. ....	Teacher Education

### Assistant Professors

W. A. Bain ....	Chemical Engineering
*S. T. Ballenger, A.M. ....	Modern Language
M. F. Buell, Ph.D. ....	Botany
T. C. Doody, Ph.D. ....	Chemical Engineering
H. C. Gauger, M.S. ....	Poultry
J. M. Parker, III, Ph.D. ....	Geology
W. A. Reid, Ph.D. ....	Chemistry
B. W. Smith, M.S. ....	Agronomy
C. F. Smith, Ph.D. ....	Entomology
W. G. Nan Note, M.S. ....	Chemical Engineering
L. A. Whitford, Ph.D. ....	Botany

### Organization

**Purposes.**—Graduate Instruction at State College is organized to formulate and develop graduate study and research in the fields primarily of Agriculture, Engineering, and Textile Manufacturing, and in the training of teachers of these subjects. The urgent need for graduate instruction leading to research in these fields is recognized by the leaders in the occupations which depend upon the development of these branches of industry. State College, therefore, offers training for teachers, investigators, and leaders in Agriculture, Engineering, and Manufacturing. Moreover, unless graduate study and research in the technological and related fields are provided, the institutions of higher learning in this section of the country will look elsewhere for trained men, whereas there should be a fair balance of such men from every section of the country.

**Facilities.**—State College offers exceptional facilities and opportunities for research. The Agricultural Experiment Station of North Carolina, the Engineering Experiment Station, and the Research Laboratories of the Textile School are integral parts of the College. In the Textile School, besides the research carried on by regular members of the staff, the Bureau of Agricultural Economics and other Bureaus at Washington have, for some years, used the facilities of the School for special research. Graduate students have the advantages offered by all these agencies in addition to the regular laboratories used for instruction.

In its undeveloped resources and raw materials, as well as in its going concerns in business and industry, in its varied topography and products, North Carolina is a rich field for research. The State is already imbued with a spirit of progress stimulating to intellectual growth.

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\* Humanities group advisory and minors only.

**Scholarships and Fellowships.**—The College offers annually graduate fellowships and a number of teaching and research fellowships. Besides these, special fellowships are supported by various commercial organizations.

College Fellowships give tuition and a stipend of \$450 an academic year, paid in nine equal installments, a month apart, beginning October 25. The holder of a fellowship may be required to render a maximum of ten hours a week of service to the Department in which he is specializing.

Teaching and Research Fellowships give \$600 or more an academic year. The holder of one of these fellowships may not carry more than half a full schedule of graduate studies. The rest of his time must be given to teaching in classroom or laboratory, or to research in one of the Experiment Stations.

The Honor Society of Phi Kappa Phi Fellowship, State College Chapter, offers \$50 annually, preferably to a member of the Society, to assist in promoting research, and advanced training of worthy students.

Special Fellowships have for some years been maintained by business or manufacturing organizations desirous of having research made on certain problems pertaining to their interest. Some organizations maintaining these scholarships have been the National Fertilizer Association, the N. V. Potash Export My., the American Cyanamids Company, the Superphosphate Institute, E. I. DuPont de Nemours and Company, the Niagara Sprayer and Chemical Company, Eli Lilly and Company, the American Potash Institute, and the Northwestern Yeast Company. The stipends afforded by these fellowships have varied from \$720 to \$1,500 for twelve months. It is hoped that some of these may be available every year.

## DEGREES

The degrees awarded by the Graduate Division of State College are either degrees in residence: Master of Science in some specialized branch of Agriculture, Education, Engineering, and Textiles; and the Master's Degree in some profession related to the undergraduate work at State College; or Professional Degrees in the fields of Agriculture, Engineering and Textiles.

A graduate student is expected to familiarize himself with the requirements for the degree for which he is a candidate and is held responsible for the fulfillment of these requirements. This applies to the last dates on which theses may be accepted, the dates for examination, the proper form for theses and all other matters regarding requirements for degrees.

### Degrees in Residence

#### Admission

1. A candidate for admission to graduate study must present an authorized transcript of his collegiate record as evidence that he holds a bachelor's degree for a four years' undergraduate course from a college whose standards are equivalent to those of State College.

2. It should be clearly understood that admission to the Graduate Division does not necessarily admit a student to full graduate status. A student attains full graduate status only when he has fulfilled all the preliminary requirements of the degree which he seeks and the prerequisites of the department under whose direction he is pursuing graduate work.

Department prerequisites are determined jointly by the Administrative Board of the Graduate Division and the heads of the respective departments. In brief, it may be stated that such prerequisites usually consist of the equivalent of an undergraduate major.

3. A member of the senior class of State College may, upon the approval of the Director of Graduate Studies, register for graduate courses to fill a roster of studies not to exceed eighteen credits for any term.

4. Members of the faculty of State College having a rank higher than that of instructor may not be considered as candidates for advanced degrees at this institution.

### Master of Science Degree

The Master of Science Degree is awarded at State College after completion of a course of study in a specialized field related to Agriculture, Education, Engineering, or Textiles; demonstration of ability to read a modern foreign language; and completion of a satisfactory thesis and of comprehensive examinations in the chosen field of study.

The rules and requirements governing the degree of Master of Science are set forth in some detail in the following paragraphs.

In addition to complying with these purely mechanical requirements, the candidate for the Master of Science Degree should understand something of the philosophy of graduate study. He is entering the field of research since he is engaged in a technical study of a single field of learning, and this study culminates in work upon a single problem, the subject of his thesis, in the solution of which he is required to give evidence of the mastery of graduate methods of investigations. He is concerned with the materials of learning, and with the organization and interpretation of these materials. Since the training is thought of as liberal, as great a latitude is permitted in the selection of courses as is compatible with the idea of a sharply defined field of major interest and with the requirement of interrelationship in the whole plan of study. The object is to make possible for the student a relative mastery of one of the applied sciences and to give him an introduction to critical scholarship and research methods. A beginning is made in the training of the specialist; hence the correlation of courses, the oral and written examinations, and the thesis. Since there are many possible combinations of courses, the method of administration provides for personal supervision of a student's work by a special committee.

Development of precision and method in investigation and the cultivation of power of criticism and evaluation of evidence, together with the enlarged mastery of the subject matter of a defined field, constitute a training of

indisputable value to the students who plan to enter the so-called learned professions or industry. Research is the way of progress in each activity.

Credits.—1. For the Master of Science degree forty-five term credits are required.

2. Not more than ten of the academic credits required for a graduate degree will be accepted from other institutions.

3. No graduate credit will be allowed for excess undergraduate credit from any other institution.

4. All work credited toward a degree in residence must be completed within six years.

Residence.—A candidate for a Master of Science degree is required to be in residence at the College, pursuing graduate work, one full academic year of three terms. The candidate is not permitted to take courses leading to forty-five credits in a shorter time.

Six summer schools of six weeks in residence at the College are sufficient to fulfill the residence requirement. By specific approval of the Director of Graduate Studies one summer period may be spent away from the College if devoted to the preparation of the thesis required for graduation.

In special cases, it is possible for graduate students to secure permission from the Director of Graduate Studies to do twelve weeks work during a summer session. Under these provisions a minimum of four summer sessions, two of twelve weeks and two of six weeks, are required for residence.

This does not mean that the work prescribed for each individual can always be completed in the minimum length of time. Inadequate preparation very frequently makes a longer period necessary. Part-time work during a regular term is evaluated on the basis of the amount of work carried.

Courses of Study.—As designated in the College Catalog under Description of Courses, the courses numbered 500 to 599 are for graduate students only, and those numbered 400 to 499 are for graduates and advanced undergraduates.

The program of the student shall contain at least twelve credits in courses of the 500 group. A maximum of 33 credits may be gained in the 400 group.

During the first term in residence the student's program will be made up by his adviser with the approval of the chief adviser of his School and the Director of Graduate Studies. Thereafter, the selection of courses shall be made by the graduate student's Advisory Committee. These advisory committees shall be appointed by the Director of Graduate Studies not later than the student's second term of residence.

All study plans are subject to the approval of the Administrative Board of the Graduate Division.

The advanced courses taken by a graduate student shall constitute a unified plan of study. The greater percentage of courses on a graduate student's program shall be in his major field and the electives shall have graduate relationship to the major field.

**Class Work.**—Since a graduate student is mature and has demonstrated his ability and earnestness, he is expected to assume greater individual responsibility and to work in a more comprehensive manner than the undergraduate student. However, in preparation, in attendance, and in all the routine of class work, the graduate student is subject to the regulations observed in other divisions of the College.

**Grades.**—A minimum grade of B must be made on all courses to obtain graduate credit.

**Language Requirements.**—1. A reading knowledge of at least one modern foreign language is required of candidates for the Master of Science degree. The knowledge will be tested by a special examination by the Modern Language Department.

2. A candidate for a Master of Science Degree is presumed to have a mastery of technical writing. Students will be required to demonstrate this proficiency before they are admitted to candidacy for a degree.

**Thesis.**—1. A candidate for the Master of Science Degree must prepare a thesis upon a subject, approved by his adviser, in the field of the student's special work. Two copies of the completed thesis must be presented to the Director of Graduate Studies at least one month before the degree is awarded.

2. Detailed instruction in the writing of the thesis will be given to the student when he is admitted as a candidate for the degree.

3. In order to be approved, a thesis must be written in correct English and scholarly form. It must demonstrate the student's ability to handle original problems and the method of development must conform to the principles of the scientific method.

**Examinations.**—Candidates for the Master of Science Degree must pass all required examinations in courses. In addition, two special examinations are required. The first of these, a written examination to determine the student's comprehension of his field, is to be set by the student's advisory committee and must be taken not earlier than the first month of the last quarter of residence. The second examination is oral and is especially designed for the defense of the thesis. These examinations are to be conducted by special committees appointed by the Director of Graduate Studies and will be held after each committee member has examined the completed thesis.

These examinations must satisfy the committee which has charge of them that the candidate possesses such knowledge of his major and minor fields as may reasonably be expected, that he can draw upon his knowledge with promptness and accuracy, and that his thinking is not limited to the separate units represented by his courses.

The special committees on theses and on the examinations will report their recommendations to the Director of Graduate Studies at least one week before the end of the last quarter of residence. If the candidate's record in these respects is satisfactory, and if he has complied with all of the

requirements for the degree, the Director of Graduate Studies will report the student to the faculty for approval and recommendation to the Board of Trustees.

### Fees

The graduate student in residence will pay a \$2.00 registration fee for each registration, \$3.00 per credit hour for all courses scheduled and \$10.00 for his diploma.

### Master's Degree in a Professional Field

The Master's degree was established to meet the needs of those students who expect to terminate their graduate work at the end of one year of residence or its equivalent and whose needs are not fulfilled by the requirements of the Master of Science Degree.

The candidate for this Master's Degree must meet all the regulations of the Graduate Division for students in residence. In addition he must fulfill the following requirements:

**Course of Study.**—The program of study for the Master's degree in a professional field is to be composed of those courses which best fit the professional aims of the student. At least 9 term credits are to be chosen from the group of courses numbered 500 for graduates only and the remainder from the group numbered 400 for advanced undergraduates and graduates.

**Degrees.**—Examples of the types of degree that may be awarded upon the completion of the course of study in a professional field are:

Master of Dairying

Master of Civil Engineering

Master of Vocational Education

Master of Yarn Manufacturing

The chief characteristic of these degrees is that the changes made in requirements permit, in greater measure, the satisfaction of what are represented as professional needs than do the requirements for the conventional Master of Science degree. The most important modification in the requirements and principles is the granting of relatively greater dispersion in programs of study than is permissible under a strict application of the principle of interrelation of subjects in a specialized field.

**Language Requirements.**—The candidate for a Master's degree in a professional field is exempt from the requirement of a reading knowledge of a modern foreign language.

**Other Requirements.**—The other requirements for the Master's degree in a professional field, especially those concerning the thesis, residence and examination are the same as for the Master of Science degree.

### Professional Degrees

Master of Agriculture

Master of Textiles

Ceramic Engineer

Chemical Engineer

Civil Engineer

Electrical Engineer

Mechanical Engineer

**Significance.**—The professional degrees are not honorary; they are tests of ability and testimonials of accomplishment. To merit the professional degree, a candidate must write a thesis, which demonstrates his ability to attack and to solve a new problem of sufficient complexity to require distinctly original processes, and the solution of which shall make, however small yet a real contribution to his profession. The record of his work must demonstrate his power to conceive, to plan, to organize, to carry through to completion a project of considerable magnitude. The candidate should quite obviously have grown professionally since his graduation and evince intellectual vitality to guarantee the continuance of his growth.

### Requirements

1. The degree of Master of Agriculture may be conferred upon graduates of State College after five years of service in agriculture, or upon graduates of similar institutions who have performed outstanding professional service in agriculture for the State of North Carolina for a continuous period of not less than five years. The candidate for the degree of Master of Agriculture must submit a satisfactory thesis which demonstrates his ability to handle an original problem related to his professional service in agriculture.

2. The degrees in Engineering or the Master of Textiles may be conferred upon graduates of State College after five years' professional practice in responsible charge of important work, upon the acceptance of a thesis on a subject related to the practice in which the applicant has been engaged.

3. Applications for the degree must be presented to the Director of Graduate Studies not less than nine months before the degree is conferred.

4. With the application for a degree, the candidate must present for approval the subject and outline of a thesis and a detailed statement of his professional work since graduation.

5. The preliminary copy of the thesis must be submitted to the Director of Graduate Studies at least four months before the commencement at which the degree is to be conferred. The completed thesis in approved form must be submitted at least two months before the degree is awarded.

6. When his thesis and detailed statement of his professional work have been approved, the candidate shall appear before his advisory committee for oral or written examination on his professional work and thesis.

### Fees

The candidate for a Professional Degree will pay 10.00 when he matriculates and \$15.00 for his diploma.

### The Degree of Doctor of Philosophy

The Degree of Doctor of Philosophy is offered in coöperation with The University at Chapel Hill under supervision of the Graduate School of the Consolidated University of North Carolina.

The Degree of Doctor of Philosophy is offered in certain specified departments. Graduate students who expect to become candidates for the degree are already registered in the Departments of:

Agricultural Economics  
Agronomy

Entomology  
Plant Pathology

Rural Sociology

Offerings will be provided in other departments as rapidly as personnel and facilities can be developed.

### Information

Further information about graduate work at State College may be secured from Z. P. Metcalf, Director of Graduate Studies, N. C. State College, Raleigh, N. C.

## DIVISION OF COLLEGE EXTENSION

Edward W. Ruggles, Director

**Purpose.**—The College Extension Division is organized to carry the practical and cultural advantage of college studies to persons who cannot attend classes on the campus, and to groups and communities that may profit by the service offered through the following means.

**Extension Classes** are organized where at least fifteen persons are interested and willing to take up the same subject. Such matters as the distance from the college, the nature of the subject, and the availability of instructors must be taken into consideration.

**Correspondence Courses** for college credit are offered in Agronomy, Animal Husbandry, Horticulture, Soils, Poultry, Agricultural Economics, Rural Sociology, Chemistry, Education, Economics, English, Geology, History, Architectural Engineering, Ceramic Engineering, Mechanical Engineering, Mathematics, Modern Languages, Sociology, Safety, and Zoölogy. The list of these courses is being added to as rapidly as possible. Complete information concerning them is included in the Bulletin of Correspondence Courses.

**Correspondence Courses** of a practical nature are offered in Business English, Mathematics, Industrial Electricity, Land Surveying, Plumbing, Engineering Drawing, Building and Estimating, Sheet-metal Pattern Drafting, Municipal Administration, Poultry, Business Law, and Vegetable Gardening. In addition, the courses in Ceramic Engineering may be taken as practical where no credit is desired.



**Short Courses** are offered by the College Extension Division to tie up the facilities of the several Schools of State College with the trades and industries of North Carolina into a permanent educational program. In carrying out this program, short courses of a practical nature are offered every year which are increasing in popularity. During the present school year the following short courses and institutes are scheduled: Electrical Meters and Relays, Engineers, Surveyors, Plumbing and Heating Contractors, Gas-Plant Operators, Water-Works Men, Retail Coal Merchants, Electrical Contractors, Building Inspectors, Rayon, and a Safety School for Truck Operators. Additional courses are being added as the demand arises.

**College Extension Lectures** by members of the faculty and concerts by the college musical organizations are available to any high school, civic club, woman's club, science club, agricultural or engineering meeting or organization, desiring to put on a good lecture or musical program.

**Engineering, Science, and Management War Training.**—Under the auspices of the United States Office of Education, and in coöperation with the School of Engineering, the College Extension Division offers Engineering, Science, and Management War Training courses designed to meet the shortage of engineers, scientists, and production supervisors with specialized training in fields essential to war industries. Courses offered include: Aerial Bombardment Protection, Aircraft Inspection, Aircraft Instruments, Architectural and Marine Drafting, Chemical Testing and Inspection, Diesel Engineering, Engineering Drawing, Fabric Inspection and Testing, Production Supervision, Radio Communication, and Surveying. Courses offered are divided into two groups: (1) Courses primarily directed toward employment in new fields. These will generally be given as full-time courses, either on or off North Carolina State College campus, and will involve at least 40 hours a week in class and preparation. (2) Courses primarily directed toward training those now employed for increased responsibility or improved technique. These will generally be part-time evening courses, either on or off campus. They will involve about 15 hours a week in class and preparation.

Bulletins describing the various functions of the Division will be gladly supplied on request. Write to Edward W. Ruggles, Director, College Extension Division, North Carolina State College, Raleigh, North Carolina.

**Full Information.**—Any person interested in extension classes or correspondence courses should write to the College Extension Division, requesting the Extension Bulletin, which contains complete information concerning methods of instruction, fees, and the conditions upon which College credit will be granted.

## THE SUMMER SESSION

**Time; Work.**—Beginning June 16, 1943, the Summer Session will continue twelve weeks. The work, directed by the regular College Officers of Administration and conducted largely by the Faculty, maintains the College standards and warrants College credit toward degrees.

**Advantages.**—Special advantages are offered those desiring to get teachers' certificates, or to renew or raise the grade of a certificate; also to teachers with ambition to advance culturally and professionally. College students may remove conditions or gain additional credits. Applicants for admission to College may add needed credits for entrance.

**Cultural Courses.**—Although the Summer Session at State College conducts courses specifically technical in Agriculture, Engineering, and Textile, and confines its Teacher Training to these departments, general courses of broad cultural value are offered in English, Modern Languages, Mathematics, Chemistry, Physics, Botany, Zoölogy, and the Social Sciences.

**Full Information** regarding the Summer Session is given in the Summer Session issue of State College Record, which may be obtained from W. L. Mayer, Registrar, State College Station, Raleigh.

## DESCRIPTION OF COURSES

### AERONAUTICAL ENGINEERING

#### Courses for Advanced Undergraduates

**Aero. E. 300. General Aeronautics** 0-3-0

Prerequisites: Math. 101, 2, 3.

Required of juniors taking Aeronautical Engineering. A study of simple aerodynamics and the airplane.

Text: Carter, *Simple Aerodynamics*.

Mr. Truitt.

**Aero. E. 310. Elementary Aeronautics** 0-0-3

Prerequisites: Phys. 201, 202, 203.

Required of juniors taking Aeronautical Engineering. A study of the design of simple component parts of the airplane.

Text: Anderson, *Aircraft Layout and Detail Design*.

Staff.

**Aero. E. 332, 333. Air Transportation\*** 0-3-3 or 3-3-0

Prerequisites: Aero. E. 310.

Required of seniors taking Aeronautical Engineering.

The various phases of airport design, air transportation and airline operation are studied in this course. This includes a survey of existing conditions, factors governing development, topographic survey, runway layout, methods of aircraft operations, personnel organization and aviation law. Practical examples are studied at the University-owned and operated airport.

Text: *Lecturer's Notes*.

Dr. Friedrich.

**Aero. E. 351, 352. Advanced General Aeronautics** 6-6-0 or 0-6-6

Elective.

Ground school course for those students wishing to receive flight training under the Civil Aeronautics Administration Program. The scope of the course embraces Navigation, Meteorology and the prescribed ground school subjects.

Text: *C.A.A. Manuals*.

Staff.

**Aero. E. 411, 412. Aircraft Manufacturing** 0-3-3 or 3-3-0

Prerequisite: Aero. E. 310.

Required of seniors taking Aeronautical Engineering.

A study of airplane manufacturing principles, methods and processes.

Texts *Lecturer's Notes*.

Dr. Friedrich.

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\* Will not be given in 1943-44.

**Aero. E. 421, 422, 423. Airplane Design**

3-3-3

Prerequisites: E.M. 213, 222, C.E. 321 and Aero. E. 310.

Required of seniors taking Aeronautical Engineering.

A study of the design and construction of airplanes.

Text: Niles & Newell, *Vol. I, Airplane Structures*; Teichmann, *Airplane Design Manual*.  
Mr. Rautenstrauch.**Aero. E. 431, 432, 433. Aerodynamics**

3-3-3

Prerequisites: Math. 303, Aero. E. 310.

Required of seniors taking Aeronautical Engineering.

A study of engineering aerodynamics, airplane performance and stability, and airworthiness specifications.

Text: Diehl, *Engineering Aerodynamics*; Jones, *Elements of Practical Aerodynamics*.  
Mr. Rautenstrauch.**Aero. E. 441, 442, 443. Aeronautical Laboratory**

1-1-1

Prerequisites: M.E. 313, 314, 315.

Required of seniors taking Aeronautical Engineering.

Laboratory testing and study of practical aspects of modern airplane construction, operation and maintenance.  
Staff.**Aero. E. 451, 452. Aircraft Engines**

3-3-0 or 0-3-3

Prerequisites: M.E. 307, 308, 309.

Required of seniors taking Aeronautical Engineering.

The practical aspect of aircraft engine operation and design including carburetors, magnetos, super-chargers, fuel and oil systems, engine installations and accessories.

Text: *Lecturer's Notes*.

Dr. Friedrich.

**Aero. E. 461. Aircraft Instruments and Navigation\***

3-0-0

Prerequisites: Aero. E. 310 or 351 and 352.

Elective.

This course deals with the instruments used in aircraft engine operation, flight indication, and in navigation. The use, principle of operation, and calibration is studied in detail. The fundamentals of navigation include problems in navigation such as course plotting, radius of action from fixed and moving bases and interception.

Text: *Lecturer's Notes*.

Staff.

\* Will not be given in 1943-44.

**Aero. E. 471. Aircraft Propeller Design\*** 3-3-3

Prerequisites: Aero. E. 310.

Elective.

The various theories are discussed in this design course. This embraces effect of blade shape, tip speed, and gearing on propeller performance. The various types of propellers are studied in detail.

Text: Wieck, *Aircraft Propeller Design*.

Mr. Rautenstrauch.

### Courses for Graduates Only

**Aero. E. 531, 532, 533. Advanced Aerodynamics** 3-3-3

Prerequisites: Aero. E. 431, 432, 433.

Advanced performance calculations and tests. Mr. Rautenstrauch.

**Aero. E. 541, 542, 543. Aeronautics Research** 3-3-3

Prerequisites: Aero. E. 441, 442, 443.

Research and thesis in connection with an aeronautical project.

Dr. Friedrich.

## AGRICULTURAL ECONOMICS

### Courses for Advanced Undergraduates

**Agr. Econ. 202. Agricultural Economics.** 0-0-3

Prerequisites: Econ. 205 or Econ. 201, 202.

Required of sophomores in Agriculture.

The economics of agricultural production, the marketing of farm products, farm credit, land tenure, and other major economic problems of the farmer.

Staff.

**Agr. Econ. 212. Land Economics.** 0-3-0

Prerequisites: Econ. 205 or 201, 202.

Required of sophomores in Forestry, and in Wildlife Conservation and Management.

Land economics including land classification and land use with special emphasis on forest land; land ownership and control; the principles of land valuation; policies of land settlement and development; the taxation of forest lands.

Mr. Sullam.

**Agr. Econ. 303. Farm Management I. 0-0-3**

Prerequisites: Econ. 205 or 201, 202.

Required of juniors in Agricultural Economics, Agriculture and Agricultural Education.

Successful operation of the farm, farm planning, management of labor, farm work programs, use of machinery, and farm administration.

Messrs. Forster, Greene.

**Agr. Econ. 313. Farm Accounting. 0-0-3**

Prerequisite: Econ. 205 or 201, 202.

Required of juniors in Vocational Agriculture.

Farm accounting, preparation of inventories of farm property, simple financial statements, methods of keeping farm records, analysis and the interpretation of results obtained from farm business transactions.

Mr. Greene.

**Courses for Graduates and Advanced Undergraduates**

**Agr. Econ. 402, 403. Farm Cost Accounting. 0-3-3**

Prerequisites: Econ. 205 or 201, 202, and 301.

Required of seniors in Agricultural Economics.

Accounting applied to farm transactions, the preparation of financial statements, the methods of keeping farm records, analysis of an individual farm record, the interpretation of the results from cost-accounting.

Mr. Greene.

**Agr. Econ. 411. Agricultural Marketing. 3-0-0**

Prerequisites: Econ. 205 or 201, 202.

Required of seniors in Agricultural Economics, Agriculture, and Vocational Education.

Successful marketing of farm products, market organization and control, price-making forces; critical examination of the present system of marketing farm products.

Mr. Leager.

**Agr. Econ. 412. Problems of Land Economics. 0-3-0**

Prerequisites: Econ. 201, 202, Agr. Econ. 202, and 6 additional term credits in Economics.

Elective.

Land classification; ownership and acquisition of land; tenancy and land ownership; the functions of the landlord and the tenant; land valuation and land speculation.

Messrs. Forster, Hamilton, Sullam.

**Agr. Econ. 421. Marketing Methods and Problems.** 3-0-0  
 Prerequisites: Econ. 201, 202, Agr. Econ. 202, and 6 additional term credits in Economics.

Required of seniors in Agricultural Economics.

The problems and methods involved in the marketing of farm products; suggestions for improvement. Mr. Clement.

**Agr. Econ. 422. Agricultural Coöperation.** 0-3-0  
 Prerequisites: Econ. 205 or 201, 202.

Required of seniors in Agricultural Economics.

Local community coöperation, both economic and social; farmers' buying, selling, and service organizations. Mr. Kenyon.

**Agr. Econ. 423. Farm Management II.** 0-0-3  
 Prerequisite: Agr. Econ. 303.

Required of seniors in Agricultural Economics.

The factors involved in the management and organization of typical farms in the State. Messrs. Greene, Forster.

**Agr. Econ. 431. Agricultural Prices.** 3-0-0  
 Prerequisites: Econ. 201, 202, Agr. Econ. 202, 303.  
 Elective.

Behavior of agricultural prices; their relation to consumption, production of farm products, and marketing practices; methods of price analysis applied to agricultural products. Mr. Anderson.

**Agr. Econ. 432. Agricultural Finance.** 0-3-0  
 Prerequisites: Econ. 205 or 201, 202, Agr. Econ. 202, and 6 additional term credits in Economics.

Elective.

Financing the production and marketing of agricultural products. Consideration of farm mortgage credit, personal and intermediate credit, and agricultural taxation. Mr. Leager.

**Agr. Econ. 442. Cotton and Tobacco Marketing.** 0-3-0  
 Prerequisites: Econ. 205 or 201, 202, Agr. Econ. 202, Agr. Econ. 411, and 3 additional credits in Economics.

Required of seniors in Agricultural Economics.

The problems, methods, and practices used in the marketing of tobacco and cotton. Mr. Forster.

**Agr. Econ. 452. History of the Agricultural Adjustment Program.** 0-3-0  
Elective for juniors and seniors in Agriculture.

Economics of the Agricultural Adjustment Acts, and of the Agricultural Conservation Programs; the effect of the programs on production and prices of cotton, tobacco, wheat, corn, and hogs. Mr. Forster.

### Courses for Graduates Only

**Agr. Econ. 501. Economics of Agricultural Production.** 3-0-0

Prerequisites: Econ. 201, 202, Agr. Econ. 202, and 6 additional term credits in Economics.

Economic theories and methods of analyses applicable to agricultural production. Mr. Forster.

**Agr. Econ. 502. Farm Organization and Management.** 0-3-0

Prerequisites: Agr. Econ. 303, 423, 501, and 6 additional term credits in Economics.

The extension of the economic principles discussed in Agr. Econ. 501, and their application to the problems of farm organization and management. Mr. Forster.

**Agr. Econ. 503. Agricultural Finance.** 0-0-3

Prerequisites: Econ. 201, 202, Agr. Econ. 432, and 6 additional term credits in Economics.

Problems in financing agricultural production and marketing. A history of the development of financial institutions designed to serve agriculture. Mr. Leager.

**Agr. Econ. 513. Coöperative Marketing Methods and Practices.** 0-0-3

Prerequisites: Econ. 201, 202, Agr. Econ. 432, and 6 additional term credits in Economics.

A critical study of the methods and practices used by large agricultural coöperatives. Mr. ....

**Agr. Econ. 521, 522, 523. Research in Agricultural Economics.** 3-3-3

Prerequisites: Economics 201, 202, and 6 additional term credits in Economics.

A consideration of the research method and procedure now being employed by research workers in the field of Agricultural Economics, including qualitative and quantitative, inductive and deductive methods of research procedure; choice of projects, planning, and execution of the research project. Messrs. Forster, Greene.



**Agr. Econ. 531, 532, 533. Analysis of National Policies and Agricultural Action Programs.** 3-3-3

Prerequisites: Econ. 201, 202, Agr. Econ. 202 and six additional term credits in Economics or Agricultural Economics.

Critical discussion of modern methods of economic analysis from the viewpoint of their applicability to problems of economic policy: an examination of the major agricultural action programs in the United States; the analysis of principles of economic policy with regard to their effect upon national and farm income and income distribution. Mr.....

## AGRICULTURAL ENGINEERING

### Courses for Undergraduates

**Agr. Eng. 202. Farm Equipment.** 0-3-0

Prerequisites: Math. 100 or Physics 115 or 201. Required of sophomores in Agriculture.

Modern equipment and buildings for the farm. Mr. Weaver.

**Agr. Eng. 212. Farm Engines.** 0-3-0

Prerequisite: Physics 115 or 201. Required of sophomores in Agr. Eng. and juniors in Animal Production and in Dairy Manufacturing.

The principles of gas-engine operation and their application to farm uses; selection, operation, and repair of engines. Mr. Giles.

**Agr. Eng. 222. Agricultural Drawing.** 0-3-0

Elective for juniors and seniors.

Drawing-board work covering both freehand sketching and elementary mechanical drawing; working and pictorial drawing, lettering, maps, graphs, tracing, and blueprinting. Mr. Weaver.

### Courses for Advanced Undergraduates

**Agr. Eng. 303. Terracing and Drainage.** 0-0-3

Prerequisites: Soils 201 and Agr. Eng. 202.

Required of juniors in Agr. Eng., juniors in Floriculture, Pomology and Vegetable Gardening, and of seniors in Animal Production, Poultry Science, and Farm Business.

The different methods of disposing of surplus water and the prevention of erosion. Mr. Weaver.

**Agr. Eng. 313. Farm Machinery and Tractors.** 0-0-3

Prerequisite: Agr. Eng. 202.

Required of seniors in Agr. Eng., and in Poultry Science.

The design, construction, and operation of modern labor-saving machinery for the farm. Mr. Giles.

Agr. Eng. 322. Farm Buildings.

0-3-0

Prerequisite: Agr. Eng. 202.

Required of juniors in Agr. Eng., and seniors in Agr. Economics.

The design, construction, and materials used in modern farm buildings. Mr. Weaver.

Agr. Eng. 331, 332. Farm-Shop Work.

3-3-0

Prerequisite: Agr. Eng. 202.

Required of juniors in Agr. Eng., and in Vocational Agriculture.

Lecture and laboratory practice, in drafting, sharpening farm tools, making concrete, woodworking, cold-metal working, forging, soldering, and pipe fitting. Mr. Giles.

### Courses for Graduates and Advanced Undergraduates

Agr. Eng. 403. Erosion Prevention.

0-0-3

Prerequisite: Agr. Eng. 303.

Required of seniors in Agr. Eng.

The causes and effects of erosion, and the methods of conserving our greatest national resource—our fertile soil. Mr. Weaver.

Agr. Eng. 423. Farm Structures.

0-3-0 or 0-0-3

Prerequisite: Agr. Eng. 322.

Required of seniors in Agr. Eng.

Modern building methods as applied to farm structures; the use of labor-saving barn equipment and methods of reducing labor to a minimum; the placing of the farm group in relation to topography and farm activities, for economy, appearance, and utility. Mr. Weaver.

Agr. Eng. 432. Rural Electrification.

0-3-0

Prerequisite: Agr. Eng. 322.

Required of seniors in Agr. Eng.

Problems involved in the distribution, uses, and costs of electricity on the farm. Mr. Weaver.

**Agr. Eng. 433. Teaching Farm-Shop Work.**

0-0-3

Prerequisites: Agr. Eng. 331 and 332.

Elective for juniors and seniors in Vocational Agriculture.

The use and care of power tools; shop management and methods of presenting the subject matter.

Messrs. Giles, Coggins.

**Agr. Eng. 481, 482, 483. Special Problems in Agricultural Engineering.**

3-3-3

Prerequisites: Agr. Eng. Three credits in 300 courses.

Only one term required of seniors in Agr. Eng., other two elective.

For students who desire advanced work in one of the following subjects:  
Farm Engines, Tractors, Farm Mach., Buildings, Conveniences, Rural  
Electrification, Erosion Control and Drainage.

Messrs. Weaver, Giles.

**Agr. Eng. 491, 492, 493. Senior Seminar.**

1-1-1

Prerequisite: Senior standing in Agr. Eng.

Required of seniors in Agr. Eng.

Students will be assigned special problems the results of which are to be presented to the class.

Messrs. Weaver, Giles.

## ANIMAL HUSBANDRY AND DAIRYING

### Courses for Undergraduates

**A. H. 202. Animal Nutrition I.**

0-3-0 or 0-0-3

Prerequisites: Chem. 101, 102, 103.

Required of sophomores in Agriculture.

Animal nutrition; composition of the animal body; digestion; nutrients; feeding standards; calculating rations.

Messrs. Haig, Ruffner, Shaw.

### Courses for Advanced Undergraduates

**A. H. 301. Farm Meats I.**

3-0-0 or 0-3-0 or 0-0-3

Elective for juniors and seniors in Agriculture. Required of juniors in A. H. and seniors in Pomology and Poultry Science.

Composition and value of meat, with practice in slaughtering and cutting.

Mr. Brady.

**A. H. 302. Farm Meats II.**

0-3-0

Prerequisite: A. H. 301.

Elective for juniors and seniors in Agriculture.

Study and practice in making retail cuts and curing pork, beef, and lamb.  
Mr. Brady.

**A. H. 303. Judging Block Animals.**

0-0-3

Elective for juniors and seniors in Agriculture.

Market and show-ring requirements for horses and mules, beef cattle, sheep, and swine. Breed characteristics of these animals in detail; practice judging of the relation of form to function in livestock. Mr. Brady.

**A. H. 311. Comparative Anatomy and Physiology of Domestic Animals.**

3-0-0

Prerequisite: Zool. 102.

Elective for juniors and seniors in Agriculture.

The structure and functions of the animal body. Laboratory, lectures and recitations. Mr. Grinnells.

**A. H. 312. Judging Dairy Cattle.**

0-3-0

Show-ring requirements for the five major breeds of dairy cattle. Breed characteristics of these animals in detail; practice judging of the relation of form to function in dairy cattle. Mr. Haig.

**A. H. 313. Sheep Production.**

0-0-3

Elective for juniors and seniors in Agriculture. Required of seniors in Animal Husbandry.

Establishment, care, and management of the farm flock. Mr. Foster.

**A. H. 321. Dairy Cattle and Milk Production.**

3-0-0

Elective for juniors and seniors in Agriculture. Required of seniors in Poultry Science and Agricultural Engineering.

Management of dairy cattle for economical milk production, including dairy-breed characteristics, adaptation, selection, management, feeding, calf raising, dairy barn equipment. Mr. Haig.

**A. H. 322. History of Breeds of Farm Animals.** 0-3-0

Required of juniors in Animal Prod. Elective for juniors and seniors in Agriculture.

Types, characteristics, and history of the leading strains and families of the different breeds of farm animals.  
Messrs. Ruffner, Haig.

**A. H. 323. Market Types of Livestock.** 0-0-3

Required of juniors in Animal Prod. Elective for juniors and seniors in Agriculture.

A study of block animals from both the market and feed lot standpoint.  
Mr. Hostetler.

**A. H. 331. Swine Production.** 3-0-0

Required of juniors in Animal Production and seniors in Poultry Science. Elective for juniors and seniors in Agriculture.

Adaptability of swine, with emphasis on feeding, judging, and management.  
Mr. Hostetler.

**A. H. 332. Testing of Milk Products.** 0-4-0

Elective for juniors and seniors in Agriculture. Required of seniors in Animal Husbandry and juniors in Dairy Manufacturing.

Testing of milk and milk products for butterfat, acidity, adulteration, preservatives, and sediment.  
Mr. Clevenger.

**A. H. 333. Cheese Making.** 0-0-3

Elective for juniors and seniors in Agriculture. Required of juniors in Dairy Manufacturing.

Lectures and laboratory practice in making various soft and hard cheeses usually made on a farm or in a cheese factory.  
Mr. Clevenger.

**A. H. 341. Dairying.** 3-0-0 or 0-3-0

Required of juniors in Animal Prod. and seniors in Vegetable Gardening. Elective for juniors and seniors in Agriculture.

Fundamentals of dairy-herd management in the production of milk and cream on the farm. Laboratory work: the use of the Babcock Test, butter making on the farm, operation of cream separators.  
Mr. Haig.

**A. H. 342. Dairy Manufacture Practice.** 0-3-0

Elective for juniors and seniors in Agriculture. Required of juniors in Dairy Manufacturing.

Lectures and laboratory practice on the business and factory management used in dairy plants. Mr. Clevenger.

**A. H. 343. City Milk Supply.** 0-0-4

Elective for juniors and seniors in Agriculture. Required of juniors in Dairy Manufacturing.

Lectures and laboratory practice; the phases of the city milk supply from the standpoint of the Milk Inspector and Board of Health; the methods and processes used in a central pasteurizing milk distribution plant and by the dairymen supplying the milk; the problems of the retail distributor of raw milk. Mr. Clevenger.

**A. H. 351. Horse and Mule Production.** 3-0-0

Election for juniors and seniors in Agriculture.

Methods in production and management of horses and mules for work on farms under Southern conditions. Special study of home-grown feeds for horses and mules at work or idle. Mr. Haig.

**A. H. 352. Common Diseases.** 0-3-0

Election for juniors and seniors in Agriculture.

Contagious, non-contagious, and parasitic diseases of farm animals. Laboratory, lectures, recitations. Mr. Grinnells.

**A. H. 353. Animal Hygiene and Sanitation.** 0-0-3

Elective for juniors and seniors in Agriculture. Required of juniors in A. H. and of senior Teachers of Agriculture.

Animal health and prevention of disease as affected by environment. Lectures, reference reading, recitations. Mr. Grinnells.

**A. H. 361. Animal Nutrition II.** 3-0-0 or 0-0-3

Prerequisite: A. H. 202.

Required of juniors in Animal Prod. Elective for juniors and seniors in Agriculture.

Feeding stuffs used in America; laws controlling feeding stuffs; preparation of feeds; home-mixed and commercial feeds. Mr. Peterson.

**A. H. 362. Dairy Machinery.**

0-1-0

Elective for juniors and seniors in Agriculture. Required of seniors in Dairy Manufacturing and Agr. Engineering.

Lecture and demonstration on the installation, kind, care, and handling of dairy-plant equipment, including the refrigerating unit, pipe fitting, soldering.  
Mr. Clevenger.

**A. H. 371. Creamery Butter Making.**

4-0-0

Elective for juniors and seniors in Agriculture. Required of juniors in Dairy Manufacturing.

Principles and practices of factory butter making, from the care of the cream on the farm through the different processes until ready for marketing.  
Mr. Clevenger.

**A. H. 372. Beef Cattle Production.**

0-3-0

Elective for juniors and seniors in Agriculture. Required of seniors in Animal Husbandry.

A study of the feeding, care, and adaptation of beef cattle to North Carolina conditions.  
Mr. Foster.

**A. H. 381. Ice-cream Making.**

4-0-0

Elective for juniors and seniors in Agriculture. Required of juniors in Dairy Manufacturing.

Standardizing of mixing and freezing ice-cream, sherbets, and other frozen products, and the physical principles involved; types of freezers, flavoring materials, fillers and binders; ice-cream standards. Theory and practice of refrigeration; its use in the ice-cream plant. Mr. Clevenger.

**A. H. 391, 392, 393. Senior Seminar.**

1-1-1

Prerequisite: A. H. 202.

Required of seniors in A. H.

A discussion of livestock problems by extension and research workers, together with special assignments to students with regard to various phases of the industry.  
Animal Husbandry Staff.

**A. H. 394. Judging Dairy Products.**

0-0-1

Elective for juniors and seniors in Agriculture. Required of seniors in Dairy Manufacturing.

A course of training for students in judging all dairy products according to official standards and commercial grades.  
Mr. Clevenger.

**A. H. 395. Summer Practicum.**

3 credits

Prerequisites: 18 credits in Animal Husbandry.

Required of all students in Animal Production and Dairy Manufacturing.

This course requires a minimum of six weeks practical work on an approved livestock farm or in a creamery. If the work is done at the College farms or College creamery, no remuneration other than specified credit will be allowed. Each student will be required to submit an outline of his proposed work during the spring term and a final report of the work done during the fall term.

Staff.

**Courses for Graduates and Advanced Undergraduates**

**A. H. 401, 402, 403. Dairy Manufactures.**

3-3-3

Prerequisites: A. H. 202 and 12 hours of the dairy manufacturing courses.

Required of seniors in Dairy Manufacturing.

Special problems dealing with the manufacture and marketing of dairy products.

Mr. Clevenger.

**A. H. 412. Animal Nutrition III.**

0-3-0

Prerequisites: A. H. 202, A. H. 361.

Elective for seniors in Agriculture.

A study of the chemistry and physiology of nutrition and the processes of animal life; recent scientific publications studied.

Mr. Peterson.

**A. H. 413. Herd Improvement.**

0-0-3

Prerequisites: A. H. 202, 341, 361.

Elective for juniors and seniors in Agriculture. Required of juniors in A. H.

This course is designed for training students as supervisors of Herd Improvement Associations in North Carolina. Rules for Advanced Registry are studied; practical work in keeping feed costs, the Babcock Test, and book-keeping necessary for dairy associations.

Mr. Haig.

**A. H. 421. Animal Breeding.**

4-0-0

Elective for juniors and seniors in Agriculture. Required of seniors in Animal Husbandry.

A study of breeding and improvement of domestic animals; a first-hand study of successful breeding establishments and their problems.

Mr. Ruffner.



**A. H. 432. Pure-Bred Livestock Production.**

0-3-0

Prerequisites: A. H. 202, 331.

Elective for seniors in Agriculture. Required of seniors in Animal Husbandry.

A study of the pure-bred livestock industry. Lectures and discussion supplemented by assignments from current periodicals and breed papers. Special study of the selection of livestock best suited to different localities.

Mr. Ruffner.

**A. H. 433. Stock Farm Management.**

0-0-3

Prerequisite: A. H. 202.

Elective for juniors and seniors in Agriculture. Required of seniors in Animal Husbandry.

A study of successful methods of operating farms devoted chiefly to livestock production; special reference is made to best systems applied to North Carolina conditions.

Mr. Ruffner.

**A. H. 441, 442, 443. Problems in Advanced Animal Breeding.**

3-0-0, 0-3-0, 0-0-3

Prerequisite: A. H. 421.

Elective for seniors in Agriculture.

A study of the physiology of reproduction. Methods and problems of breeders; influence of pedigree, herd books, and Mendelism in animal breeding.

Mr. Shaw.

**Courses for Graduates Only****A. H. 501, 502, 503. Research Studies in Animal Husbandry.**

3-0-0 or 0-3-0 or 0-0-3

Prerequisite: Eighteen credits in Animal Husbandry.

An intensive study of experimental data.

Staff.

**A. H. 511, 512, 513. Advanced Nutrition.**

3-0-0, 0-3-0, 0-0-3

Prerequisites: A. H. 202, 361.

A survey of experimental feeding, together with a study of the fundamental and practical feeding problems of the various sections of the country. A study is made of the effects of various feeds on growth and development. Animals are used in demonstrating the effects of these various nutrients and rations.

Mr. Peterson.

**A. H. 521, 522, 523. Special Problems in Dairy Manufacturing Practice.**

3-3-3

Prerequisite: Eighteen term credits in Dairy Manufacturing.

Available for graduate students interested in special dairy manufacturing problems under definite supervision and approval. Mr. Clevenger.

**A. H. 531, 532, 533. Seminar.**

1-1-1

Subjects assigned to be reviewed and discussed. Review of literature, scientific reports and Experiment Station bulletins. Oral and written reports.

**ARCHITECTURE AND ARCHITECTURAL ENGINEERING****Courses for Undergraduates****Arch. 100. Pencil Sketching.**

3-0-0, 0-3-0, 0-0-3

or 1-1-1

Required of seniors in L. A., and sophomores in Ind. Arts. Elective for Engineering and Textile students.

Quick sketching of objects as seen and imagined in perspective; elementary principles of perspective, especially as applied to the visualization of imagined objects. *Mimeographed Notes and Problems Sheets.*

Messrs. Paulson, Baumgarten.

**Arch. 101, 102, 103. Freehand Drawing 1, 2, and 3.**

2-2-2

1. Required of juniors in Arch., and Arch. Eng.

2-0-0

Water color rendering. Nature and qualities of pigments; theory of color and of tone; presentation of decorative and of pictorial subjects in monochrome and in full color. Guptill: *Reference to Color.*

2. Required of juniors in Arch., Arch. Eng., and L. A.

0-2-0

Sketching in pencil, and pen and ink from models, casts and nature. Emphasis upon tonal value, pattern of darks, character and variety of line, and accenting. Lettering. Watson: *Pencil Sketching.*

3. Required of juniors in Arch., Arch. Eng., and L. A.

0-0-2

Charcoal Drawing from architectural casts and models; emphasis upon delicacy and gradation of shade and shadow; value sketches of composition projects. Mr. Paulson.

**Arch. 104s. Art Appreciation for Teachers.**

0-0-3

Picture study of the list suggested by the State Board of Education for grade-school use, including paintings, architecture, and sculpture. Paulson: *Art Appreciation for Teachers.* Mr. Paulson.

**Arch. 105. Art Principles in Industry.** 3-0-0

Elective for Engineering and Textile students, required of sophomores in Industrial Arts.

Line, form, color, and aesthetic principles of practical art applicable to the design of articles for manufacture. *Mimeographed Notes*. Mr. Paulson.

**Arch. 106. Decorative Drawing.** 3-0-0, 0-3-0, 0-0-3

Required of juniors in the Textile School.

Freehand drawing and creative designing of decorative motives adaptable to weaving and cloth printing. *Mimeographed Problem Sheets*.

**Arch. 107. Architectural Drawing.** 3-3-0

Required of freshmen in Architecture. M. E. 105 and 106 may be substituted for Arch. 107.

[Drafting Practice.] Use of instruments in drawing plans, elevations, sections; projections; architectural lettering and conventions; tracing and blue-printing; elements of architecture and introduction to design. Pickering: *Architectural Design*. Mr. Grady.

**Arch. 111, 112, 113. Appreciation of Fine Arts, Architecture, Painting, Sculpture.** 3-3-3

Elective for students of junior standing.

Principles of art. Study of those qualities which constitute great art. First term, architecture; second term, painting; third term, sculpture and the minor arts. Reinach: *Apollo*; *University Prints*; *Mimeographed Notes*. Gardner: *Art Through the Ages*. Mr. Paulson.

**Arch. 114. Clay Modeling.** 1-1-1

Prerequisite: Arch. 100.

Required of seniors in Arch.

Modeling of ornament, reliefs, and full round projects in clay or wax; moulds and plaster casting; small scale building detail models. Lectures, laboratory, and critiques. Mr. Grady.

### Courses for Advanced Undergraduates

**Arch. 201, 202, 203. Elements of Architecture I, II, and III.** 3-3-3

Prerequisites: M. E. 105, 106, or Arch. 107.

Required of sophomores in Arch., Arch. Eng., and L. A.

Exercises and studies of architectural elements and details, walls, openings, etc. The orders of architecture and their application to simple problems in composition and design. Pickering: *Architectural Design*; Ramsey and Sleeper: *Graphic Standards*. Messrs. Shumaker, Grady.

- Arch. 205. Shades and Shadows. 2-0-0  
 Prerequisite: M. E. 107.  
 Required of sophomores in Arch., Arch. Eng., and juniors in L. A.  
 The determination of conventional shades and shadows as they occur on rendered drawings. Shelton: *Architectural Shades and Shadows*.  
 Messrs. Shumaker, Grady.
- Arch. 206. Perspective Drawing. 1-0-0  
 Prerequisite: M. E. 107.  
 Required of sophomores in Arch., Arch. Eng., and of juniors in L. A. and Agr. Engr.  
 Theory of perspective with special applications to illustration and design. Lectures and drawing. Turner: *Fundamentals of Architectural Design*.  
 Mr. Baumgarten.
- Arch. 207. Historic Motives in Textiles. 0-3-0  
 Elective for students of junior standing.  
 Chronologic development of ornament motives; the adaptation of historic motives to modern textile design. Hamlin: *History of Ornament*.  
 Mr. Paulson.
- Arch. 211, 212, 213. Freehand Drawing 4, 5, and 6. 3-3-3  
 Prerequisite: Arch. 103.  
 Required of fifth year Arch., elective for others.  
 The purpose of this course is to give the student a mastery of presentation in his own chosen medium. The first term (Arch. 211) will be devoted principally to still life; the second (Arch. 212) to landscape; the third (Arch. 213) to figure drawing. Personal technique encouraged; sound principles of drawing insisted upon.  
 Mr. Paulson.
- Arch. 301, 302, 303. Intermediate Design, B-1, B-2, B-3. 3-3-3  
 Prerequisites: Arch. 201, 202, 203.  
 Required of juniors in Arch., and Arch. Eng.  
 Problems in elementary composition, design, planning and rendering. Library research. Registration with the Beaux Arts Institute of Design may be required. *Beaux Arts Institute Problems*. Messrs. Baumgarten, Grady.
- Arch. 304. Photographic Practice. 0-0-1  
 Required of juniors in Arch., and Arch. Eng.  
 The practical use of photography as an aid in architectural rendition. *Lectures, Notes and Assignments*.  
 Mr. Paulson.

**Arch. 305. Working Drawings.**

0-0-2

Prerequisites: Arch. 201, 202, 203.

Required of sophomores in Arch.

The preparation of working drawings of sections and details of construction. Ramsey and Sleeper: *Graphic Standards*; Knoblock: *Good Practice in Construction*.  
Messrs. Shumaker, Grady.

**Arch. 321, 322, 323. History of Architecture 1, 2, and 3.**

3-3-3

Prerequisite: Arch. 203.

Required of juniors in Arch., Arch. Eng., and L. A.

The origin and development of historic styles of architecture from antiquity to the nineteenth century. Illustrated lectures, library references, sketches. Fletcher: *History of Architecture*; Hamlin: *History of Architecture*.  
Mr. Baumgarten.

**Arch. 325. History of Sculpture and Mural Decoration.**

0-0-2

Prerequisite: Arch. 203.

Required of juniors in Arch.

The development of sculptural and mural art as adjuncts to architecture, ancient to modern; critique of modern decoration supplementary to architecture. Mimeographed notes, library reference and illustrated lectures.

Mr. Grady.

**Arch. 351, 352. Architectural Design E-1, E-2.**

3-3-0

Prerequisite: Arch. 303.

Required of seniors in Arch. Eng.

Advanced Architectural Design studied especially from the viewpoint of structure; projects developed with wall and spanning sections; rendered presentation of practical constructive programs.

Messrs. Baumgarten, Grady.

**Arch. 353, 354, 355. Architectural Design B-4, B-5, and B-6.**

6-6-6

Prerequisite: Arch. 303.

Required of seniors in Arch.

Advanced programs in architectural design. Registration with the Beaux Arts Institute of Design may be required. Complete presentation drawings of projects such as Class B—*Beaux Arts Institute Problems*.

Messrs. Baumgarten, Grady.

## Arch. 401, 402, 403. Architectural Design A-I, A-II, A-III. 6-6-6

Prerequisite: Arch. 355.

Required of fifth year in Arch.

Major problems in advanced planning and research. Registration with the Beaux Arts Institute of Design may be required. *Beaux Arts Institute Problems.* Messrs. Shumaker, Baumgarten, Grady.

## Arch. 407. Architectural Composition. 2-0-0

Prerequisite: Arch. 323.

Required of fifth year in Arch.

Principles of planning and composition as related to buildings; architectural motives, group planning; library research and sketches. Curtis: *Architectural Composition.* Mr. Shumaker.

## Arch. 408. Architectural Estimates. 0-0-2

Prerequisite: Arch. 305.

Required of fifth year in Arch. and seniors in Arch. Engr.

Lectures and problems in taking off quantities and in estimating materials and labor cost in building construction. *Mimeographed Notes.*

Mr. Shumaker.

## Arch. 409. Building Materials I. 3-0-0

Prerequisite: Arch. 303.

Required of seniors in Arch. and Arch. Eng.

Nature and qualities of building materials, especially fabricated materials, and their use in interior and exterior finish and in construction. Sample exhibits, lectures and demonstrations. *Manufacturers' Data Sheets.*

Mr. Grady.

## Arch. 411, 412. Architectural Office Practice. 0-3-3

Prerequisite: Arch. 305.

Required of juniors in Arch., seniors in Arch. Eng.

The preparation of working drawings from sketches, following office routine. Knoblock: *Good Practice in Construction*; Ramsey and Sleeper: *Graphic Standards.* Messrs. Baumgarten, Grady.

## Arch. 414. Professional Practice. 0-0-1

Prerequisite: Econ. 307.

Required of fifth year in Arch.

Ethics and procedure in the profession of architecture. Relation of patron and commissionee. *Mimeographed Notes.* Mr. Shumaker.

**Arch. 415. City Planning.**

0-2-0

Prerequisite: Arch. 323.

Required in fifth year in Arch.

Origin and development of urban communities; aesthetic, economic, and circulatory problems in city and town planning; zoning and restraining legislation.

Messrs. Shumaker, Baumgarten.

**Arch. 416. Architectural Specifications.**

0-0-3

Prerequisite: Econ. 307.

Required of seniors in Arch. and Arch. Eng.

Execution of specifications for architectural building contracts; identification of material, clarification of terms; protection of patron, contractor, and architect. *Mimeographed Notes.*

Mr. Shumaker.

**Arch. 421. History of Architecture 4.**

0-3-0

Prerequisite: Arch. 323.

Required in fourth year in Arch.

Nineteenth century and contemporary architectural styles, with special attention to trends resulting from the use of modern materials; illustrated lectures, discussion assignments, and reports. Fletcher: *History of Architecture.*

Mr. Baumgarten.

**Arch. 501, 502, 503. Graduate Design I, II, III.**

4-4-4

Prerequisites: Arch. 323, 403 (or 352).

Class A.—Project. Advanced problems in design. Archaeology. Measured Drawings. Registration with the Beaux Arts Institute of Design is required. *Beaux Arts Institute Problems.* Messrs. Shumaker, Baumgarten, Grady.

**Arch. 511, 512, 513. Historic Research I, II, III.**

4-4-4

Prerequisites: Arch. 323, 403 (or 352).

Research in Architecture and Art in some important phase of its development. Library work with sketches. *Library References.*

Messrs. Paulson, Baumgarten, Grady.

## BOTANY

## Courses for Undergraduates

Bot. 101, 102. General Botany. 4-4-0

Required of freshmen and sophomores in Agriculture.

The first term: the nature of the higher crop type plants; the second: a survey of the major lower plant groups with the emphasis upon the economic forms, bacteria and fungi.

Messrs. Wells, Shunk, Anderson, Whitford, Buell.

Bot. 203. Systematic Botany. 0-0-3

Prerequisites: Bot. 101, 102.

Elective in Agriculture and Science.

An introduction to the local flora and the classification of the plants included therein.

Messrs. Wells, Shunk, Whitford, Buell.

Bot. 211-213. Dendrology. 3-0-3

Prerequisites: Bot. 101, 102, 203.

Required of sophomores in Forestry.

The principal trees of North America.

Mr. Buell.

Bot. 221. Plant Physiology. 0-0-5

Prerequisites: Bot. 101, 202.

Required of sophomores in Forestry.

The activities of living plants with special emphasis upon the fundamental principles concerned.

## Courses for Advanced Undergraduates

Bot. 301. Diseases of Field Crops. 3-0-0

Prerequisites: 101, 102.

Elective for juniors and seniors.

The more important diseases of field crops, such as cotton, tobacco, corn, small grains, legumes, and grasses; emphasis on symptoms, cause, and control.

Mr. Lehman.

Bot. 303. Diseases of Fruit and Vegetable Crops. 0-0-3

Prerequisites: Bot. 101, 102, 221.

Elective for juniors and seniors.

Lectures and laboratory studies of importance, causes, symptoms, and control of diseases affecting these crops.

Mr. Shaw.



**Bot. 311. Diseases of Forest Trees.**

3-0-0

Prerequisites: Bot. 101, 102, 221.

Required of seniors in Forestry.

Lectures and laboratory studies of importance, causes, symptoms, and control of diseases affecting trees and their products. Mr. Ellis.

**Bot. 401. Methods in Plant Pathology.**

Prerequisites: Bot. 101, 102, 221, 301 or 303.

Elective.

A detailed survey of essential methods in the study of plant pathological problems. Mr. Nielsen.

**Bot. 402. General Bacteriology.**

0-4-0

Prerequisites: Bot. 101, 102, or Zool. 101.

Required of juniors or seniors in Agriculture.

An introduction to the principles of bacteriology; laboratory work on modern cultural methods of handling and studying bacteria. Mr. Shunk.

**Bot. 411-412. Plant Morphology.**

3-3-0

Prerequisites: Bot. 101, 102, 203.

Elective in Agriculture and Forestry.

An advanced survey of plants; the lower groups are given the first term, the higher (land plants) the second. Messrs. Wells, Shunk, Whitford.

**Bot. 432. Advanced Plant Physiology.**

0-3-0

Prerequisites: Bot. 101, 102, 221.

A critical and comprehensive treatment of the various aspects of plant physiology; particular attention given to basic principles and to recent developments. Mr. Anderson.

**Bot. 441. Plant Ecology.**

3-0-0

Prerequisites: Bot. 101, 102, 221.

Required of juniors in Forestry.

Environmental control of plant distribution with emphasis upon the habitats and vegetation of North Carolina. Mr. Wells.

**Bot. 442. Microanalysis of Plant Tissue.**

0-3-0

Prerequisites: Bot. 101, 102, 221.

The identification in plant tissues of mineral elements and organic compounds and the physiological significance of these materials. Mr. Anderson.

- Bot. 443. Soil Microbiology.** 0-0-3  
 Prerequisites: Bot. 101, 102, 221, 402.  
 Elective in Agriculture and Forestry.  
 The more important microbiological processes that occur in soils: decomposition of organic materials, ammonification, nitrification, and nitrogen fixation. Mr. Shunk.
- Bot. 451. Plant Microtechnique.** 3-0-0  
 Prerequisites: Bot. 101, 102.  
 Elective in Agriculture and Forestry.  
 Materials and processes involved in the preparation of plant structures for microscopic examination. Mr. Anderson.
- Bot. 452. Advanced Bacteriology.** 0-3-0  
 Prerequisites: Bot. 101, 102, 221, 402.  
 Methods used in the bacteriological analysis of water and milk. Mr. Shunk.
- Bot. 453. Advanced Plant Ecology.** 0-0-3  
 Prerequisites: Bot. 221, 441.  
 Elective in Agriculture and Forestry.  
 Practice in the use of the instruments necessary in the study of environmental factors; advanced readings and conferences on plant distribution in relation to these factors. Mr. Wells.
- Bot. 462. Research Methods in Plant Physiology.** 0-3-0  
 Experience in the use of techniques important in physiological research.
- Bot. 463. Advanced Systematic Botany.** 0-0-3  
 Prerequisites: Bot. 101, 102, 203.  
 A continuation of the elementary course 203 in the identification of the local flora plants together with a survey of the plant families from the modern phylogenetic point of view. Mr. Buell.
- Bot. 473. Aquatic Biology.** 0-0-2  
 Prerequisites: Bot. 101, 102.  
 Required of Sanitary Engineers.  
 Identification and control of the aquatic algae and protozoa which give trouble in reservoirs. A survey of the higher water and marsh plants is also included. Mr. Whitford.

**Bot. 481, 482, 483. Pathogenic Fungi.**

3-3-3

Prerequisites: Bot. 101, 102.

Elective.

Required of seniors in Plant Pathology.

A study of the structure, identification, and classification of fungi pathogenic on plants.

Mr. Lehman.

**Bot. 491. Principles of Plant Pathology.**

0-5-0

Prerequisites: Bot. 101, 102, 221, 301 or 303 or equivalent.

Elective.

Required of seniors in Plant Pathology.

An advanced study of the epiphytology and etiology of diseases of plants.

Mr. Lehman.

**Bot. 492. Principles of Plant Disease Control.**

0-5-0

Prerequisites: Bot. 101, 102, 221, 301 or 303.

Elective.

A critical study of the major principles involved in the control of causative agents of diseases of plants, including exclusion, eradication, protection, and immunization.

Mr. Shaw.

**Bot. 501, 502, 503. Pathology of Special Crops.**

3-3-3

Prerequisites: 301 or 303, 491.

A comprehensive survey of the literature dealing with diseases of specific crops.

Diseases of Field Crops. 3-0-0, Mr. Lehman.

Diseases of Fruit Crops. 0-3-0, Mr. Shaw.

Diseases of Vegetable Crops. 0-0-3, Mr. Ellis.

**Bot. 511, 512, 513. Bacteriology: Special Studies.**

3-3-3

Prerequisites: Bot. 402, 452.

Special work on restricted groups of bacteria, such as nitrogen bacteria of the soil, milk organisms, and special groups of bacteria in water.

Mr. Shunk.

**Bot. 521. Advanced Systematic Botany.**

3-0-0 or 0-0-3

Prerequisites: Bot. 203.

An advanced survey of restricted groups of plants involving organization and distribution problems.

Messrs. Wells, Buell.

Bot. 523. Cytogenetics. See F. C. 523.

Bot. 531, 532, 533. Plant Physiology. 3-3-3

Prerequisite: Bot. 221, 432.

Critical study of some particular problem, involving original investigation together with a survey of pertinent literature. Mr. Anderson.

Bot. 541. Plant Ecology. 3-0-0 or 0-0-3

Prerequisites: Bot. 203, 441.

Minor investigations in vegetation-habitat problems accompanied by advanced reference reading. Mr. Wells.

Bot. 551, 552, 553. Research in Botany. 3-3-3

Prerequisite: 30 hours in 100-300 courses in Botany. Staff.

Bot. 561, 562, 563. Seminar. 1-1-1

Attendance by the student upon the weekly seminar together with the presentation of a paper in his major field of research. Mr. Wells.

## CERAMIC ENGINEERING

### Courses for Undergraduates

Cer. E. 202. Ceramic Materials. 0-3-0

Prerequisite: Geol. 220.

Required of sophomores in Ceramic Engineering.

The origin and occurrence of ceramic raw materials, their chemical and physical properties and system of measuring these. Ries: *Clays Occurrence, Properties, and Uses*. Mr. Stone.

Cer. E. 203. Ceramic and Mining Processes. 0-0-3

Prerequisite: Geol. 220.

Required of sophomores in Cer. E. and Geol. E.

The winning and preparation of ceramic materials; the equipment and processes used in manufacturing ceramic products. Garve: *Factory Design and Equipment*. Mr. Greaves-Walker, Lambe.

## Courses for Advanced Undergraduates

**Cer. E. 301. Drying Fundamentals and Practice.** 3-0-0

Prerequisites: Phy. 203, Cer. E. 202.

Required of Juniors in Cer. E.

Theory and practice of drying ceramic products; problems. Greaves-Walker: *Drying Ceramic Products*. Mr. Greaves-Walker, Van Note.**Cer. E. 305. Ceramic Products.** 0-0-3

Prerequisite: Cer. E. 202.

Prerequisite: Cer. E. 102.

Required of juniors in Cer. E.

Physical, chemical, and artistic requirement of ceramic products. Laboratory practice. Messrs. Greaves-Walker, Stone, Lambe.

**Cer. E. 302. Firing Fundamentals and Practice.** 0-3-0

Prerequisites: Cer. E. 301.

Required of juniors in Cer. E.

The theory and practice of firing ceramic products. Problems. Wilson: *Ceramics; Clay Technology*. Mr. Greaves-Walker, Lambe.**Cer. E. 303. Ceramic Calculations.** 0-0-3

Prerequisites: Chem. 212, Cer. E. 302.

Required of juniors in Cer. E.

Solution of chemical and physical problems of the ceramic industries. Andrews: *Ceramic Tests and Calculations*. Mr. Lambe.**Courses for Graduates and Advanced Undergraduates****Cer. E. 403. Silicates I.** 3-0-0

Prerequisites: Chem. 331, Cer. E. 303 and Geol. 338.

Required of seniors in Cer. E.

The fundamental principles underlying the composition and production of whitewares, glazes, terra cotta, and abrasives. Hall and Insley: *A Compilation of Phase Rule Diagrams*. Mr. Stone.**Cer. E. 404. Silicates II.** 0-3-0

Prerequisites: Chem. 331, Cer. E. 403 and Geol. 338.

Required of seniors in Cer. E.

The fundamental principles underlying the composition and production of refractories, cements, plasters, glasses, and metal enamels. Hall and Insley: *A Compilation of Phase Rule Diagrams*; Andrews: *Enamels*; Scholes: *Modern Glass Practice*. Mr. Stone.

**Cer. E. 401. Pyrometry.** 1-0-0  
 Prerequisite: Cer. E. 302.  
 Required of seniors in Cer. E.  
 The theory and use of temperature measuring instruments in industry.  
 Wood and Cork: *Pyrometry*. Mr. Stone.

**Cer. E. 411, 412, 413. Ceramic Laboratory.** 3-3-3  
 Prerequisites: Cer. E. 303, 305, Corequisite: Cer. E. 403, 404.  
 Required of seniors in Cer. E.  
 Advanced practice in producing and determining the chemical and physical properties of ceramic materials and products; thesis.  
 Messrs. Stone, Lambe.

**Cer. E. 414, 415. Ceramic Designing.** 0-4-4  
 Prerequisites: M. E. 213, E. M. 322, Cer. E. 203 and 303.  
 Required of seniors in Cer. E.  
 Designing of ceramic equipment and structures. Garve: *Factory Design and Equipment*. Messrs. Greaves-Walker, Stone.

**Cer. E. 405. Refractories.** 0-0-3  
 Prerequisites: Chem. 331, Geol. 338, Cer. E. 404.  
 Prerequisites: Chem. 331, Geol. 338, Cer. E. 102, 304.  
 Required of seniors in Cer. E.  
 Refractory materials and manufacture of refractory products; use of refractory products in industrial furnaces. Norton: *Refractories*.  
 Messrs. Greaves-Walker, Van Note.

#### Courses for Graduates Only

**Cer. E. 501, 502, 503. Designing of Ceramic Equipment and Plants.** 3-3-3  
 Prerequisite: Cer. E. 415.  
 Advanced study and designing of ceramic machinery, dryers, kilns, and plant structures. Mr. Greaves-Walker.

**Cer. E. 505, 506, 507. Advanced Refractories and Furnaces.** 3-3-3  
 Prerequisite: Cer. E. 413, 405.  
 Advanced study of refractory materials and products, and their use.  
 Mr. Greaves-Walker.

**Cer. E. 509, 510, 511. Industrial Adaptability of Ceramic Materials. 3-3-3**

Prerequisite: Cer. E. 413.

Laboratory investigations to determine the industrial uses to which various North Carolina ceramic materials can be put.

Messrs. Greaves-Walker, Stone.

**Cer. E. 513, 514, 515. Ceramic Research. 3-3-3**

Prerequisite: Cer. E. 413.

Research problems in ceramics will be assigned to meet the desire of the student for specialization.

Messrs. Greaves-Walker, Stone.

**Cer. E. 517, 518, 519. Glass Technology. 3-3-3**

Prerequisites: Chem. 331, Geol. 338, Cer. E. 405.

Advanced study of the manufacture and physical properties of glass.

Mr. Greaves-Walker.

**Cer. E. 521, 522, 523. Advanced Silicate Technology. 3-3-3**

Prerequisite: Cer. E. 413.

Advanced laboratory practice in bodies, glazes, glasses and colors.

Mr. Stone.

## CHEMICAL ENGINEERING

### Courses for Undergraduates

**Chem. E. 201, 202, 203. Introduction to Chemical Engineering. 1-1-2**

Prerequisites: Chem. 103; Math. 102.

Required of sophomores in Chem. E.

Reactions in chemical processes, illustrative problems, and control methods; elements of unit processes and unit operation; visits to chemical plants, elementary chemical engineering calculations. Randolph: *Introduction to Chemical Engineering*.

Messrs. Randolph, Seely.

**Chem. E. 212, 213. Chemical Nature of Engineering Materials. 0-3-3**

Prerequisites: Chem. 103; Math. 103.

Required of seniors in General Engineering; elective for others.

Study of the fundamental facts about the chemical nature of engineering materials as an aid in the proper choice of materials for various engineering purposes under working conditions. *Teachers' Manual*. Mr. Randolph.

## Courses for Advanced Undergraduates

**Chem. E. 311, 312, 313. Chemical Engineering I. 3-3-3**

Prerequisites: Chem. 213; Chem. E. 201 or Tex. 212.

Required of juniors in Chem. E. and elective for seniors in Textile Chemistry and Dyeing.

Unit processes; inorganic and organic technology; chemical manufacturing processes; introductory unit operations. Reigel: *Industrial Chemistry*; Scroggins: *Organic Unit Processes*; Badger and McCabe: *Elements of Chemical Engineering*; *Teachers' Manual*; and Library References.

Messrs. Bright, Overcash.

**Chem. E. 321, 322, 323. Chemical Engineering Laboratory I. 1-1-1**

Prerequisite or concurrent: Chem. E. 311, 312, 313.

Required of juniors in Chem. E.

A laboratory study of industrial control methods; visits to industrial plant; problems and processes solved and presented in technical reports; preparation of products on pilot plant scale; cost studies. *Notes*.

Messrs. Bright, Overcash.

**Chem. E. 330. Treatment of Water and Sewage. 3-0-0 or 0-0-3**

Prerequisite: Chem. E. 313 or C. E. 215.

Required of juniors in San. E.

Principles involved in the control of municipal water supplies and in sewage treatment; reactions involved; chemical nature of water and sewage treatment; methods for removal of the more objectionable materials in industrial waters. *Notes*.

Messrs. Randolph, Doody.

**Chem. E. 331. Industrial Stoichiometry. 3-0-0 or 0-3-0 or 0-0-3**

Prerequisite or concurrent: Chem. E. 311.

Required of juniors in Chemical Engineering.

Industrial calculations and measurements; heat balances; material balances fuels and combustion processes; principles of chemical engineering calculations. Hougen and Watson: *Industrial Chemical Calculations*.

Mr. Seely.



## Courses for Graduates and Advanced Undergraduates

**Chem. E. s401. Pilot Plant Practice.** 3 credits

Prerequisites: Chem. E. 312, Chem. E. 323, Chem. 213.

Required of Junior Chemical Engineering students and elective for others. To be given during two weeks immediately preceding the opening of the fall term in September.

Practical application of chemical machinery and chemical testing methods. Pilot plant examination of chemical processes. Cost estimation and process development through pilot plant studies. Reference: current technical journals, lectures and notes. Messrs. Doody, Randolph.

**Chem. E. 411, 412, 413. Principles of Chemical Engineering.** 3-3-3

Prerequisite: Chem. E. 313; concurrent with Chem. 431.

Fundamental principles of Chemical Engineering; unit operations; Chemical Engineering calculations; design and efficiency of chemical machinery and equipment. Walker, Lewis, McAdams, and Gilliland: *Principles of Chemical Engineering*; Badger and McCabe: *Elements of Chemical Engineering*. Messrs. Doody, Seely.

**Chem. E. 421. Water Treatment.** 3-0-0 or 0-3-0 or 0-0-3

Prerequisite: Chem. E. 311.

Required of seniors in Chem. E. Elective for others.

Water supplies; equipment and practice in filter plants; water purification and softening; filters; water examination; treatment of water for domestic and industrial uses. *Notes*. Messrs. Randolph, Doody.

**Chem. E. 422. Chemistry of Engineering Materials.** 3 or 3 or 3

Prerequisite: Chem. E. 311.

Required of seniors in Chem. E.

Technical study of engineering materials for engineering and industrial uses; effects of conditions of extraction, production, and consequent treatment to their suitability for required uses. Leighou: *Chemistry of Engineering Materials*; White: *Engineering Materials*. Mr. Bright.

**Chem. E. 423. Electrochemical Engineering.** 3-3-3 or 0-0-3

Prerequisite: Chem. E. 311.

Required of seniors in Chem. E.

Theory and practice of electrochemical industries; principles of electrolysis and other electrochemical processes; electric furnace; electrothermal operations, electrometallurgy. Mantell: *Industrial Electrochemistry*. Mr. Doody.

**Chem. E. 425. Gas Engineering.\***

3 or 3 or 3

Prerequisite: Chem. E. 311.

Elective for seniors or graduates in Chem. E.

Gas engineering; manufacture of industrial fuel gases and their distribution; apparatus and equipment; plant design; general practice in gas plants; by-products, pipe lines, service connections, gas meters.

Mr. Randolph.

**Chem. E. 426. Sanitation Processes.\***

0-0-3

Prerequisite: Chem. E. 311, or C. E. 383.

Technical study of the methods of sanitation in industrial plants; equipment and practice in the disposal and treatment of waste materials and sewage; measures necessary in eliminating occupational disease hazards.

Notes.

Mr. Randolph.

**Chem. E. 427. Industrial Application of Physical Chemistry.**

3-0-0

Prerequisite: Chem. E. 311, or Chem. 331.

Special phases of physical chemistry studied technically with reference to the practical application of these principles in the chemical industries such as industrial catalysis, evaporation principles, absorption, equilibrium, applications of phase rule, physical metallurgy, colloids. Notes.

Mr. Doody.

**Chem. E. 428. Fuel and Combustion Engineering.**

0-3-0

Prerequisite: Chem. E. 311.

Principles and mechanism of the combustion reactions; quantitative application to problems of design or use of equipment for fuel processing and utilization; solid, liquid, and gaseous fuels, with complete methods of analysis. Haslam and Russell: *Fuels and Their Combustion*. Mr. Bright.

**Chem. E. 431, 432, 433. Chemical Engineering Laboratory and Design II.**

2-2-2

Prerequisite or concurrent: Chem. E. 411, 412, 413.

Required of seniors in Chem. E.

A laboratory study of measurement of flow of fluids and heat; crushing and grinding, distillation; evaporation; drying; humidity; filtration and mechanical separation; absorption and extraction; calculations; design and construction of equipment for these fundamental unit operations in chemical industry.

Messrs. Doody, Seely, Bright.

\* Not given in 1943-1944.

**Chem. E. 434. Chemical Engineering Design.** 0-0-3

Prerequisite: Chem. E. 411, 412.

Location, layout, and complete design of the chemical plant and its process equipment; materials of construction; economic factors controlling the chemical industry, and optimum design from the standpoint of economic return, process development, pilot-plant production studies. *Notes.*

Messrs. Doody, Seely.

**Chem. E. 435. Industrial Oil, Fats and Waxes.\*** 0-0-3 or 3-0-0

Prerequisite: Chem. E. 313.

Elective for juniors or seniors in Chem. E.

Petroleum engineering; manufacture, refining, and conversion of animal and vegetable oils and their by-products; lubricants. Mr. Seely.

**Chem. E. 436. Chemical Engineering Thermodynamics.\*** 3 or 3 or 3

Prerequisite or concurrent: Chem. E. 411, 412, 413.

A study of the thermal properties of matter and energy relationships underlying chemical processes. Fundamental laws of energy as applied to Chemical Engineering problems and processes in industry. Mr. Doody.

**Chem. E. 437. Cellulose and Allied Industries.** 3-3-0

Prerequisite or concurrent: Chem. E. 311 or Forestry 206, 207.

Elective.

Cellulose and its compounds; methods and processes for pulp, paper, and cellulose conversion products; engineering design for cellulose and allied industries. *Notes.* Mr. Randolph.

**Chem. E. 438. Corrosion: Causes and Prevention.** 0-0-3

Prerequisite: Chem. E. 313.

Theories of corrosion; influences of metal composition and manufacture; chemical corrosion; prevention of corrosion; comparison of corrosive resisting materials for chemical and industrial uses. Speller: *Corrosion; Causes and Prevention.* Mr. Bright.

**Chem. E. 439. Chemical Principles.\*** 3 or 3 or 3

Prerequisite or concurrent: Chem. E. 313.

Fundamental principles in chemical manufacture and correlation of these principles in unit processes and operation. Hougden and Watson: *Industrial Chemical Calculations.* *Notes.* Mr. Doody.

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\* Not given in 1943-1944.

**Chem. E. 440. Metals and Alloys.**

0-3-0

Prerequisite: Chem. E. 422 or M. E. 131.

Elective for seniors or graduates.

Relation of chemical composition and crystalline structure to the properties of metals and alloys; technical study of the composition and structure of metals for chemical and industrial uses. Williams and Homerberg: *Principles of Metallography*. Mr. Bright.

**Courses for Graduates Only****Chem. E. 501. Chemical Technology—Advanced.**

3-3-3

Prerequisite: Chem. E. 413.

An advanced course in problems, processes, and methods of chemical manufacture and production; special study in applied inorganic, applied organic chemistry, and research in applied chemistry. Staff.

**Chem. E. 502. Industrial Chemical Research.**

3-3-3

Prerequisite: Chem. E. 413.

Chemical research on some industrial problem relating to North Carolina resources; practice in industrial plants, control analyses, estimate of losses, costs, data sheets, technical report. Staff.

**Chem. E. 503. Chemical Engineering Research.**

3-3-3

Prerequisite: Chem. E. 413.

Some plant problem studied exhaustively by making investigations at the chemical plant, and by supplementary experiments and research in the laboratory; measurements, tabulation, graphs, calculation of some actual plant problem, and Pilot plant research problems. Staff.

**Chem. E. 504. Advanced Chemical Engineering.**

3-3-3

Prerequisites: Chem. E. 411, Chem. E. 433.

Advanced study of process equipment, theory, and practice in operation and design for unit operations; Chemical Engineering thermodynamics; coefficients of heat transfer; heat of reactions; evaporators; stills; condensers, and heat exchangers; interrelations between heat transfer and fluid friction. McAdams: *Heat Transmission* and other texts. Staff.

## CHEMISTRY

## Courses for Undergraduates

**Chem. 101, 102, 103. General Inorganic Chemistry. 4-4-4**

Recitations and laboratory work; theories of laws, history, occurrence, preparation, properties, and uses of the more important elements and their compounds; formulae, valence, equations and calculations.

Messrs. Reid, Jordan, Morgan, Satterfield, Showalter, Loeppert, White, Wilson.

**Chem. 211. Qualitative Analysis. 4-0-0**

Prerequisites: Chem. 101, 102, 103.

Required of sophomores in Ceramic, Chemical, and Mining Engineering and those majoring in chemistry and of juniors in Textile Chemistry and Dyeing.

Identification and separation of more common ions and analysis of mixture of salts of commercial products.

Messrs. Wilson, Reid, Loeppert.

**Chem. 212. Quantitative Analysis. 0-4-0**

Prerequisite: Chem. 211.

Required of sophomores in Ceramic Engineering, Chemistry, Chemical Engineering, and of juniors in Textile Chemistry and Dyeing.

Volumetric Analysis: Alkalinity, acidimetry, oxidation, and iodometric titrations.

Messrs. Wilson, Reid, Loeppert.

**Chem. 213. Quantitative Analysis. 0-0-4**

Prerequisite: Chem. 211.

Required of sophomores in Chemical Engineering.

A continuation of Chem. 212. Gravimetric methods. Substances of more difficult nature are analyzed, as minerals, steel, alloys, limestone, Paris green, etc.

Messrs. Wilson, Reid, Loeppert.

**Chem. 221. Introduction to Organic Chemistry. 4-0-0 or 0-4-0 or 0-0-4**

Prerequisites: Chem. 101, 102, 103.

Required of sophomores in Agriculture. Elective for others.

Hydrocarbons, alcohols, aldehydes, ketones, acids, ethers, esters, amino-acids, and bezeno derivates; carbohydrates, fats, proteins, and related compounds.

Mr. Reid.

**Chem. 223. Quantitative Analysis.** 0-0-4

Required of students in Textile Chemistry and Dyeing.

A continuation of Chem. 212. Substances of more difficult nature are analyzed, as sulphites, sulphides, bleaching powder, Turkey-red oil, soaps.

Messrs. Wilson, Reid, Loeppert.

**Chem. 233. Quantitative Analysis.** 0-0-4

Continuation of Course 212, along with gravimetric methods used in the analysis of magnesium, phosphate rock, fertilizer and insecticide.

Messrs. Wilson, Reid, Loeppert.

**Chem. 242. Chemical Calculations.** 0-3-0 or 0-0-3

Prerequisites: Chem. 101, 102, 103.

Chemical problems, especially in analytical work; lectures on principles, theories, laws, upon which the problems are based; assigned problems for discussion.

Mr. White.

**Chem. 331. Physical Chemistry.** 5-0-0

Prerequisites: Chem. 101, 102, 103.

Required of Cer. E.; elective to others.

Fundamental chemical principles from a physiochemical viewpoint; special attention to silicate analysis, colloids, and phase rule.

Mr. Sutton.

### Courses for Graduates and Advanced Undergraduates

**Chem. 401. Historical Chemistry.** 2-0-0

Prerequisites: Chem. 101, 102, 103.

Development of Chemistry and the history of men instrumental in the progress of Chemistry.

Mr. Williams.

**Chem. 402, 403. Theoretical Chemistry.** 0-2-2

Prerequisites: Chem. 101, 102, 103.

Atoms and molecules; chemical reactions and conditions influencing them; electronic conception of valence, radio activity.

Mr. Jordan.

**Chem. 411. Advanced Qualitative Analysis.** 4-0-0

Prerequisite: Chem. 211 or its equivalent.

Lectures and laboratory work dealing with the analysis of alloys and complex mixture.

Mr. Wilson.

**Chem. 412. Advanced Quantitative Methods.** 0-3-0 or 0-0-3

Prerequisite: Chem. 213 or its equivalent.

Methods and apparatus in advanced quantitative analysis; heat of combustion, colorimetry, complete analysis of ores, special steels, paint pigments and alloys. Mr. Wilson.

**Chem. 421, 422, 423. Organic Chemistry.** 4-4-4

Prerequisites: Chem. 101, 102, 103.

Required of juniors in Chemical Engineering, Chemistry, and seniors in Textile Chemistry and Dyeing. Elective for others.

Aliphatic and aromatic compounds; practical applications; methods of preparation and purification of compounds, and their structures.

Mr. Williams.

**Chem. 424. The Chemistry of Hydrocarbons and Their Derivatives.**

0-3-0 or 0-0-3

Prerequisites: Chem. 421, 422, 423.

New developments in solvents, resins, detergents, synthetic rubber, motor fuels. Mr. Reid.

**Chem. 431, 432, 433. Physical Chemistry.**

4-4-4 or 4-4-0

Prerequisite: Chem. 213.

The first two terms only required of Chemical Engineers; elective for Agricultural Chemistry students.

Principles of Physical Chemistry; laws and theories, application to various branches of chemistry and to industrial processes. Mr. Sutton.

**Chem. 441. Food Products and Adulterants.**

3-0-0 or 0-3-0

Prerequisites: Chem. 221 or 421, 422, 423.

Designed for students in all schools.

Food principles; cereals, starches, sugars, fats; milk and milk products; the packing house; food preservation; beverages, spices and condiments; food legislation, food advertising. Mr. Satterfield.

**Chem. 442. Chemistry of Colloids.**

0-3-0

Prerequisites: Chem. 221 or 421, 422, 423.

Colloidal behavior, osmotic pressures, dialysis, sols and gels, membranes and membrane equilibria, proteins, and Donnan equilibrium. Mr. White.

**Chem. 451, 452. Physiological Chemistry.** 3-3-0

Prerequisites: Chem. 221 or 421, 422, 423.

Essential chemical facts pertaining to life processes; digestion, absorption, metabolism, secretions, and excretions; lectures, laboratory.

Mr. Satterfield.

**Chem. 462. Chemistry of Vitamins.** 0-3-0 or 0-0-3

Prerequisites: Chem. 221 or 421, 422, 423.

Required of juniors in Animal Prod.

Application of vitamin hypothesis to human nutrition; history, nomenclature, properties, distribution, effects of deficiencies, vitamin values.

Mr. Satterfield.

**Chem. 472. Blood Analysis.** 0-3-0 or 0-0-3

Prerequisites: Chem. 212 and 421, 422, 423.

Hemoglobin, sugar, urea, uric acid, cholesterol, creatine, creatinine, non-protein, nitrogen, amino-acid nitrogen, calcium. Folin-Wu system is emphasized; lectures and laboratory.

Mr. Satterfield.

**Chem. 481. Agricultural Chemistry.** 3-0-0

Prerequisites: Chem. 101, 102, 103, and 221 or 421, 422, 423.

Feeding the plant; insecticides and fungicides; transforming the plant into human food and animal food; composition of plants; relation between composition and uses.

Mr. Satterfield.

**Chem. 482, 483. Food and Nutrition.** 0-3-3

Prerequisites: Chem. 221 or 421, 422, 423.

Open to all students desiring a practical knowledge of the subject.

Carbohydrates, fats, proteins, amino-acids, minerals, fiber, vitamins, enzymes; nutritive value of food materials; digestion, food idiosyncrasy; acidosis and alkalosis.

Mr. Satterfield.

**Chem. 491, 492, 493. Advanced Physical Chemistry.** 3-3-3

Prerequisites: Chem. 431, 432, 433.

An advanced problem course designed for chemical engineers.

Mr. Sutton.



## Courses for Graduates Only

- Chem. 501, 502, 503. Organic Chemistry, Advanced.** 3-3-3  
 Prerequisites: Chem. 421, 422, 423.  
 Principles of organic chemistry; current literature; laboratory work and preparation in quantity. Mr. Williams.
- Chem. 511. Organic Qualitative Analysis.** 3-0-0  
 Prerequisites: Chem. 421, 422, 423.  
 Detection of elements and radicals, group characteristics.  
 Mr. Williams.
- Chem. 512. Organic Quantitative Analysis.** 0-3-0  
 Prerequisites: Chem. 212, 421, 422, 423.  
 Analysis of organic compounds for carbon, hydrogen, nitrogen, the halogens, sulfur. Mr. Williams.
- Chem. 513. Micro-Analysis.** 0-0-3  
 Prerequisites: Chem. 421, 422, 423.  
 Tests for compounds, and impurities in quantities too small to be detected by ordinary methods. Mr. Williams.
- Chem. 523. Micro-Chemical Analysis.** 0-0-3  
 Prerequisite: Chem. 213.  
 Inorganic micro qualitative analysis; fibers, starches, etc. Mr. Wilson.
- Chem. 531, 532, 533. Chemical Research.** 3-3-3  
 Prerequisite: 54 term credits in Chemistry. Open to all graduates.  
 Special problems that will furnish material for a thesis. Staff.
- Chem. 541, 542, 543. Seminar.** 1-1-1  
 Required of graduate students specializing in Chemistry.  
 Preparation and presentation of abstracts of current publications in the field of Chemistry.
- Chem. 552, 553. Biochemistry.** 0-3-3  
 Prerequisites: Chem. 421, 422, 423, 482, 483.  
 Special topics in Biochemistry. Mr. Satterfield.

## CIVIL ENGINEERING

## Courses for Undergraduates

## C. E. 101, 102, 103. Drawing.

Required for freshmen in Forestry and Landscape Architecture.

Plain lettering, common symbols, platting of areas from compass-survey notes furnished, filling in contours from notes furnished, tracing, calculation of areas by planimeter; finished maps. Sloane and Montz: *Elementary Topographic Drawing*.  
Messrs. Fontaine, Lambe.

## C. E. s200. Surveying.\*

3 credits

Prerequisite: Math. 102.

Required in the summer immediately following the freshman year in Aero. E., Agr. Eng., A. E., Cer. E., E. E., and M. E., and in Gen. E. following the sophomore year.

The use, care and adjustment of surveying instruments; elementary land surveying, traverse lines, leveling, topographical surveying and stadia measurements. Tracy: *Plane Surveying*.  
Staff.

## C. E. 221, 222, 223. Surveying, Theoretical.

3-3-3

Prerequisite: Math. 102.

Required of all sophomores in Civil Engineering. C. E. 221, 222 required in Forestry (0-3-3), in Geol. Eng., Landscape Architecture, and Wildlife Conservation and Management (3-3-0).

Use, care and adjustment of surveying instruments, land surveying, topographical surveying, leveling and theory of stadia measures, plane table, etc.

Third term, railroad surveys, including simple, compound, reverse, and spiral curves, turnouts, etc. Davis and Foote: *Surveying*. Rubey: *Route Surveys*.  
Staff.

## C. E. 224. Topographic Drawing.

0-0-1

Prerequisites: C. E. 101, 102, 103.

Required of sophomores in Forestry.

Plotting by coördinates; contours and general topography. Notes.

Staff.

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\* Note.—Two sessions: (a) Full time, 3 weeks immediately following close of College third term; (b) half time, 6 weeks concurrently with College Summer School term in order to allow students to schedule summer school work.

**C. E. 225, 227. Field Surveying. 1-0-1**

To be taken concurrently with C. E. 221, 223.

Required of all sophomores in Civil Engineering and Landscape Architecture. C. E. 225 required in Geol. E. and Wildlife Conservation and Management (1-0-0), and in Forestry (0-1-0).

Surveying field practice, topographical surveys, railroad and highway curves. Profiles, cross-sections. Staff.

**C. E. 226. Mapping. 0-1-0**

Prerequisites: M. E. 105, 106. To be taken concurrently with C. E. 222.

Required of all sophomores in Civil Engineering, and juniors in Geological Engineering.

Practice in conventional signs and lettering. A complete topographical map and tracing is to be made involving the use of three methods of contour location. Field notes to be furnished. Messrs. Fontaine, Lambe.

**C. E. 281. Mill and Mill Village Sanitation. 3-0-0**

Prerequisite: Chem. 103.

Mill and mill village water supply and sewage disposal, mosquito and fly control, sanitary milk supply, industrial hygiene. Course for textile students. Ehlers and Steele: *Municipal and Rural Sanitation*. Mr. Stiemke.

### Courses for Advanced Undergraduates

**C. E. s300. Surveying and Mapping. 3 credits**

Prerequisites: C. E. 221, 222; C. E. 224.

Required in summer immediately following sophomore year in Forestry.

Boundary; topographical surveys, and calculations of sections of College Experimental Forestry Lands. Finished section maps. Davis and Foote: *Surveying*. Staff.

**C. E. s310. Advanced Surveying.\* 3 credits**

Prerequisites: C. E. 221, 222, 223; C. E. 226.

Required in the summer immediately following the sophomore year in Civil Engineering and Landscape Architecture.

Plane table practice, special problems in surveying practice; triangulation, railroad and highway spirals; hydrographic surveying with sextant; plane table problems; the use and rating of current meters; measurement of stream flow; drainage problems.

Laying out proposed construction work. Topographic details and special problems. Davis and Foote: *Surveying*. Staff.

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\* Note.—Two sessions: (a) Full time, 3 weeks immediately following close of College third term; (b) half time, 6 weeks concurrently with College Summer School term in order to allow students to schedule summer school work.

**C. E. 321. Materials of Construction.**

3 or 3 or 3

Prerequisite: Junior standing.

Required of all juniors in Civil Engineering, M. E., Aero. E. and A. E., and of seniors in I. E.

The study of materials used in buildings and other engineering structures, with particular reference to their methods of manufacture and physical properties. Two periods lecture and recitation; one period laboratory. Tucker: *Laboratory Manual in the Testing of Materials*. Mills: *Materials of Construction*. Messrs. Fontaine, Babcock.

**C. E. 322, 323. Materials Testing Laboratory.**

0-1-1

Prerequisite: C. E. 321.

Required of seniors in General Civil, Sanitary, and Transportation Engineering, and one term only for juniors in Architectural and Ceramic Engineering.

The testing of materials used in construction. Tucker: *Manual in the Testing of Materials*. Mr. Fontaine.

**C. E. 343. Hydraulic Structures.**

0-0-3

Prerequisite: E. M. 330.

Required of juniors in General Civil, Sanitary, and Transportation Engineering.

Application of the fundamentals of Fluid Mechanics to problems in Hydraulic Engineering; flow in pipes, in canals and natural water courses; design of locks and dams for navigation; flood control and power development; theory of design, installation and operation of pumps and hydraulic motors. Mr. Stiemke.

**C. E. 362, 363. Construction Engineering I.**

0-3-3

Prerequisite: E. M. 311.

Required of juniors in Construction and Building Materials Engineering.

Building codes, zoning ordinances; quantity surveys; timber properties, grading, identification, use, and preservation; frame construction; timber design. Huntington: *Building Construction; Notes and Trade Literature*.

Mr. Bramer.

**C. E. 365, 366. Sanitary and Mechanical Equipment of Buildings. 3-3-0**

Prerequisites: E. M. 311, 312.

First term required of juniors in Construction and Building Materials Engineering. First and second terms required of juniors in Arch. E.

A study of water supply, soil, waste, and vent-pipe systems, principles and practice of heating and ventilating and a discussion of various other mechanical equipment of a building, such as elevators, dust-collecting systems, etc. Gay and Fawcett: *Mechanical and Electrical Equipment of Buildings*.  
Mr. Stiemke.

**C. E. 367. Specifications. 0-0-3**

Prerequisite: C. E. 321.

Required of juniors in Construction and Building Materials Engineering.

Preparation of specifications and legal documents for building operations.  
Kirby: *Elements of Specification Writing*.  
Mr. Bramer.

**C. E. 372, 373. Transportation Engineering I. 0-3-3**

Prerequisite: C. E. 221, 222, 223.

Required of juniors in General Civil, Sanitary, and Transportation Engineering.

General design, construction, and maintenance of highways, railroads, and airports.  
Mr. Babcock.

**C. E. 383. Sanitary Engineering. 0-0-3**

Prerequisite: Chem. 103.

Required of juniors in San. E.

Water supply and sewage disposal; ventilation; mosquito and fly control; refuse disposal; public health laws and organization. Ehlers and Steele: *Municipal and Rural Sanitation*.  
Mr. Stiemke.

**Courses for Graduates and Advanced Undergraduates****C. E. 421, 422. Reinforced Concrete. 3-3-0**

Prerequisites: E. M. 313, 322.

Required of all seniors in Civil Engineering and Architectural Engineering.

Derivation of formulas used in reinforced concrete design, use of diagrams and curves. Illustrative problems in design. Turneaure and Maurer: *Principles of Reinforced Concrete Construction*. Messrs. Mann, Bramer.

C. E. 423, 424, 425. Graphic Statics.

1-1-1

Prerequisite: E. M. 313.

First term required of all seniors in Civil Engineering. First, second, and third terms required of all seniors in Architectural Engineering.

Principles involved in the solution of problems by graphical methods. Moments, shears. Resultant pressure on retaining walls. Stress diagrams. Fairman and Cutshall: *Graphic Statics* and assigned references.

Mr. Mann.

C. E. 426, 427. Structural Design.

0-3-3

Prerequisites: E. M. 322, C. E. 431.

Required of all seniors in Civil Engineering and Architectural Engineering.

Design of beams, columns, tension members, plate girders, trusses and structures. Bishop: *Structural Design*.

Mr. Mann.

C. E. 431, 432. Theory of Structures.

3-3-0 or 0-3-3

Prerequisite: E. M. 322.

Required of all seniors in Civil Engineering and General Engineering.

Roof trusses; bridge trusses; three hinged arch, lateral bracing and portals; rigid frame, wind stresses in tall buildings, indeterminate trusses, secondary stresses. Spofford: *Theory of Structures*.

Mr. Bramer.

C. E. 431a, 432a. Theory of Structures (abridged).

3-3-0

Prerequisite: E. M. 322.

Required in Architectural Engineering, C. E. 431, 432, to be required if less than five students enroll for C. E. 431a, 432a.

Stress analyses and designs of wooden and steel roof trusses; wood, steel, and reinforced concrete floor systems. Theory and design of columns, footings, retaining walls. Theories for wind stress design in tall buildings. Shedd and Vawter: *Theory of Simple Structures*.

Mr. Bramer.

C. E. 435. Soil Mechanics.

0-0-3

Prerequisites: E. M. 321, 322.

Required of seniors in General Civil, Sanitary, Transportation, and Geological Engineering.

The classification of soils, their physical characteristics and tests; the suitability of certain types of soils for foundations; methods of stabilizing soils; general principles involved in selection of soils for foundations.

Messrs. Babcock, Bramer.

**C. E. 449. Hydrology.**

0-0-3

Prerequisite: E. M. 330.

Elective for seniors in Engineering.

The study of the science of the occurrence, distribution and use of water upon the earth with particular reference to North Carolina, including precipitation, evaporation, transpiration, seepage, runoff and stream flow.  
 Myer: *Elements of Hydrology*. Mr. Stiemke.

**C. E. 453. Applied Astronomy.**

4-0-0

Prerequisite: C. E. s310.

Required of seniors in General Civil and Transportation Engineering.

The application of astronomy in determining latitude, azimuth, longitude and time; astronomical observations with transit and sextant; reduction of observations. One credit given for observations. Hosmer: *Applied Astronomy*.  
 Messrs. Babcock, Bramer.

**C. E. 455. Aerial Surveying.**

0-0-3

Prerequisite: C. E. s310.

Required of seniors in General Civil.

A study of various methods of constructing topographical maps from horizontal, vertical, and oblique photographs, and different methods of control of Aerial Surveys. The work covered is confined to the methods of producing maps from photographs and does not take up the technical work of photography or piloting. Bagley: *Aerophotography and Aerosurveying*.  
 Mr. Babcock.

**C. E. 461, 462, 463. Construction Engineering II.**

3-3-3

Prerequisite: C. E. 362, 363.

Required of seniors in Construction and Building Materials Engineering.

Estimating frame, masonry, and reinforced concrete buildings; design and construction of concrete formwork; study of reinforced concrete and steel-framed structures; cost analysis, organization, and management of construction plants; prefabricated construction. Huntington: *Building Construction; Notes and Trade Literature*.  
 Mr. Bramer.

**C. E. 471, 472. Transportation Engineering II.**

3-3-0

Prerequisite: C. E. 372, 373.

Required of seniors in General Civil and Transportation Engineering.

Transportation systems—their development, operation, control, and use.  
 Mr. Babcock.

C. E. 473. Transportation Design. 2-0-0

Prerequisite: C. E. 372, 373.

Required of seniors in Transportation Engineering.

Design of highways, highway intersections, airports, and allied transportation facilities. Mr. Babcock.

C. E. 474, 475. Highway Engineering. 0-3-3

Prerequisite: C. E. 372, 373.

Required of seniors in Transportation Engineering.

Highway administration and finance; economic location of highways; the motor vehicle and its operation; traffic regulation and control.

Mr. Babcock.

C. E. 481, 482. Sanitary Engineering Laboratory. 1-1-0

Concurrent with C. E. 485, 486.

Required of seniors in General Civil and Sanitary Engineering.

Laboratory analysis of sewage and sludge. Inspection trips to sewage disposal plants. Laboratory analysis for determining quality and safety of water. Inspection of waterworks in various cities. *Notes.* Mr. Stiemke.

C. E. 483. Financing of Sanitary Utilities. 0-0-3

Prerequisites: Math. 303, C. E. 383.

Required of seniors in Sanitary Engineering.

Rates and service charges, collections, operating cost control, bond issues, and budgets. Mr. Stiemke.

C. E. 485. Waterworks. 3-0-0

Prerequisite: E. M. 330.

Required of seniors in General Civil and Sanitary Engineering.

Municipal waterworks; quantity; sources of supply; collection; purification; distribution. Babbitt and Doland: *Water Supply Engineering.*

Mr. Stiemke.

C. E. 486. Sewerage. 0-3-0

Prerequisite: E. M. 330.

Required of seniors in General Civil and Sanitary Engineering.

Separate and combined sewer system; principles of design and construction; sewer appurtenances; disposal plants. Metcalf and Eddy: *Sewerage and Sewage Disposal.* Mr. Stiemke.



**C. E. 488. Water Purification.**

0-3-0

Prerequisites: E. M. 330, C. E. 485.

Required of seniors in Sanitary Engineering.

Design and operation of water purification plants; sedimentation, coagulation, filtration, and sterilization of water. Recent treatment processes. Inspection trips to various plants. Babbitt and Doland: *Water Supply Engineering*.  
Mr. Stiemke.

**C. E. 489. Sewage Disposal.**

0-0-3

Prerequisite: C. E. 486.

Required of seniors in Sanitary Engineering.

Design and operation of sewage disposal plants ;treatment processes and devices; efficiencies and costs of plants; public health, legal and economic problems involved. Inspection trips to disposal plants. Metcalf and Eddy: *Sewerage and Sewage Disposal*.  
Mr. Stiemke.

**Courses for Graduates Only****C. E. 525, 526, 527. Advanced Structural Design.**

3-3-3

Prerequisites: C. E. 426, 427.

Analysis and design of fixed, hinged and multispan arches. Complete designs of steel and reinforced concrete structures. MacCullough and Thayer: *Elastic Arch Bridges*.  
Mr. Bramer.

**C. E. 531, 532, 533. Advanced Structural Theory.**

3-3-3

Prerequisites: C. E. 431, 432.

Stress analysis in continuous frames and arches; secondary stresses; wind stresses and space frame-work. Analyses by use of Beggs' Deformeter. Sutherland and Bowman: *Advanced Structural Theory*.  
Mr. Bramer.

**C. E. 561, 562, 563. Construction Engineering Research.**

3-3-3

Prerequisites: C. E. 461, 462, 463.

Study of recent advancement and developments in Construction. Original research.  
Mr. Bramer.

C. E. 573, 574, 575. Highway Engineering Research. 3-3-3

Prerequisite: Eighteen term credits in Transportation Engineering.

A study of the important research projects in the field of highway transport or that of highway engineering. The first term is usually given to the preparation of a bibliography of highway research projects; the second term is devoted to the preparation of papers on the results of specified research projects; the third term is devoted to original research and investigation.  
Mr. Babcock.

C. E. 581, 582, 583. Sanitary Engineering Research. 3-3-3

Prerequisites: C. E. 383, 488, 489.

In the first term, a study of recent developments and research in Sanitary Engineering is made from current literature. In the second term, a research problem is selected and data on the problem are compiled from literature. In the third term, individual research is done.  
Mr. Stiemke.

C. E. 585, 586. Advanced Sewage Disposal. 3-3-0

C. E. 588, 589. Advanced Water Purification. 0-3-3

## ECONOMICS

### Courses

Econ. 201, 202, 203. General Economics. 3-3-3

Required of sophomores in Constr. E., I. E., juniors in Agricultural Teaching, Cer. E., C. E., E. E., Geol. E., H. E., M. E., and Textile curricula, and of seniors in A. E., Chem. E., and San. E.

A study of economic institutions and general principles governing production and distribution of wealth under the existing economic organization.  
Messrs. Brown, Green, Leager, Moen, Shulenberg, and Wood.

Econ. 205. Introduction to Economics. 3-0-0 or 0-3-0 or 0-0-3

Required of students in Forestry, Land. Arch., and Ind. Arts.

The business aspects and economic organization of society; production, distribution, and value of economic goods.  
Mr. Green.

Econ. 212. Accounting for Engineers. 3-0-0 or 0-3-0

A survey of accounting principles; financial statements, their construction, use, and interpretation.  
Mr. Shulenberg.

**Econ. 301, 302, 303. Principles of Accounting. 3-3-3**

Required of juniors in Agricultural Economics, Industrial Engineering, Textile Manufacturing, and Yarn Manufacturing.

Fundamental principles of theory and practice; interpretation of the structure, form, and use of business statements. Mr. Shulenberg.

**Econ. 305. Business Organization. 0-3-0**

Prerequisites: Econ. 201, 202, 203 or 205.

Required of seniors in Highway Engineering.

Forms of business enterprises; single enterprises, partnerships, joint-stock companies and corporations; principles of business management.

Mr. Green.

**Econ. 307. Business Law. 3-0-0 or 0-3-0 or 0-0-3**

Prerequisite: Junior standing.

Required of seniors in Engineering.

Sources of law; fields of law; contracts, agency, sales; negotiable documents; the law as it controls business transactions.

Messrs. Green and McMillan.

**Econ. 308. Advanced Business Law. 0-0-3**

Prerequisite: Econ. 307.

A continuation of Economics 307, including bailments, suretyship, real property; corporations; recent developments in State and Federal Law.

Mr. Green.

**Econ. 311, 312, 313. Marketing Methods and Sales Management. 3-3-3**

Prerequisites: Econ. 201, 202, 203 or 205.

Marketing functions, agencies, systems; retailing; marketing analysis; problems in marketing; elements of sales management. Mr. Moen.

**Econ. 315. Advertising. 0-0-3**

Prerequisites: Econ. 201, 202, 203.

Principles of advertising.

Mr. Moen.

**Econ. 318. Money and Credit. 3-0-0**

Prerequisites: Econ. 201, 202, 203 or 205.

The functions, history, and development of money and credit; contemporary policies and relation to prices; interrelations of money and credit in banks and financial institutions. Mr. Moen.

**Econ. 319. Modern Banking.** 0-3-0

Prerequisites: Econ. 201, 202, 203 or 205.

Origin and development of banking in the United States; functions and operations of the modern bank; banking laws; Federal Reserve System.

Mr. Moen.

**Econ. 320. Corporation Finance.** 0-0-3

Prerequisites: Econ. 201, 202, 203.

Raising and spending of funds and standards of control. Mr. Moen.

**Econ. 325, 326. Industrial Management.** 3-3-0

Prerequisites: Econ. 201, 202, 203.

Required of seniors in Textile Engineering; elective for all others.

Principles and techniques of modern scientific management; relationship of finance, marketing, industrial relations, accounting, and statistics to production; techniques regarding specific problems; analysis of economic, political, and social influences on production.

Mr. Wood.

**Econ. 331. Labor Problems.** 3-0-0

Prerequisites: Econ. 201, 202, 203 or 205.

An economic approach to labor problems, including such topics as insecurity, wages, hours, working conditions, substandard workers, legislation aimed at correcting existing evils.

Mr. Wood.

**Econ. 332. Industrial Relations.** 0-3-0

Prerequisites: Econ. 201, 202, 203.

History, organization, activities, and policies of organized labor; legal aspects, recent developments.

Mr. Wood.

**Econ. 333. Personnel Management.** 3-0-0 or 0-3-0 or 0-0-3

Prerequisites: Econ. 201, 202, 203 or 205.

Required of Textile seniors; elective for all others.

Emphasis on the human problems of industry. A review of the scientific techniques and results of research regarding the problems of employment; training, promotion, transfer; health and safety; service and welfare; and joint relations.

Mr. Wood.

**Econ. 335. Time Study.**

0-3-0

Prerequisites: Econ. 201, 202, 203.

Analysis of shop operation into elements, and the determination of the time for each element; emphasis on factors affecting job specification, and wage-rate setting.

Mr. Wood.

**Econ. 340. Transportation Problems.**

0-0-3

Prerequisites: Econ. 201, 202, 203.

The economic aspects of transportation facilities provided by the railroads, highways, and air- and water-transportation agencies; principles and problems of rate making, operation, management, valuation, coordination and government regulation.

Mr.....

**Econ. 401. Advanced Accounting.**

3-0-0

Prerequisites: Econ. 301, 302, 303.

Problems of asset valuation, such as depreciation, replacements, amortization, etc., found in all types of business organizations.

Mr. Shulenberg.

**Econ. 404, 405. Principles of Cost Accounting.**

0-3-3

Prerequisites: Econ. 301, 302, 303.

Cost finding, material costs, labor costs, overhead costs, etc.

Mr. Shulenberg.

**Econ. 408. Survey of Statistical Methods.**

3-0-0 or 0-3-0

Prerequisites: Econ. 201, 202, 203 or 205.

Required of juniors in Forestry and Agricultural Economics.

Elective for all others.

Methods of describing quantitative data; collection and methods of analysis of statistical materials; charts and graphs for presenting numerical facts.

Mr. Leager.

**Econ. 409. Statistical Technique.**

0-3-0

Prerequisite: Econ. 408.

Required of juniors in Agricultural Economics.

The problem of estimation, correlation; simple linear and nonlinear forms; normal curve and probable error; methods of sampling.

Mr. Leager.

**Econ. 414. International Economic Relations.**

Prerequisites: Econ. 201, 202, 203 or 205.

Backgrounds and some newer developments in international economics, with special emphasis on the position of the United States in world trade.  
Mr. Green.

**Econ. 415. Investment Problems and Policies.**

0-3-0

Prerequisites: Econ. 201, 202, 203 or 205.

Different types of investments and methods of judging them. Managing personal finances.  
Mr. Moen.

**Econ. 416. Public Finance and Taxation.**

0-3-0

Prerequisites: Econ. 201, 202, 203.

Classes of income and expenditure; incidence of different classes of taxes.  
Mr. Moen.

**Econ. 418. Principles of Insurance.**

0-0-3

Prerequisites: Econ. 201, 202, 203.

Elective.

Risk as an element of all agricultural and industrial activity; discussion of such risks as can be covered by insurance with the appropriate form of insurance, e.g., employer's liability, workmen's compensation, fire, life, and other forms.  
Mr. Shulenberger.

**Econ. 501. Advanced Economic Theory.**

3-3-0

Prerequisite: Eighteen (18) term credits in Economics.

Recent and current economic theory; principal schools of economists; theory of prices under the system of free enterprise. Mr. ....

**Econ. 502. History of Economic Doctrines.**

0-0-3

Prerequisite: Econ. 501.

History of economic doctrines from the Mercantilists to the period of Ricardo.  
Mr. ....

## EDUCATION: TEACHER EDUCATION

### AGRICULTURAL EDUCATION

**Ed. 308. Visual Aids.**

0-0-3

Prerequisite: Junior standing.

Required of students in Education.

Methods and technique of visual instruction; lettering; statistical illustrating; chart, graph, and poster-making; photography; projector operation, care, and use. Designed for teachers and extension workers.

Mr. Armstrong.

### Courses for Graduates and Advanced Undergraduates

**Ed. 406. Principles of Teaching.**

3-0-0

Prerequisites: Ed. 303 or 304.

Required of seniors in Agr. Ed.

Principles of teaching with applications to vocational agriculture; personal requisites of a teacher; responsibilities; objectives of teaching; school control; motivation; directing study.

Mr. Cook.

**Ed. 407. Methods of Teaching Agriculture.**

5-0-0

Prerequisites: Ed. 303, 308, or equivalents, and at least 12 credits in Agriculture.

Required of students in Agricultural Education.

Organization of subject matter; teaching techniques; supervised practice; textbooks and reference material; Future Farmers of America; organization of departments of vocational agriculture; agricultural guidance.

Mr. Cook.

**Ed. 408. Observation and Directed Teaching.**

0-5-0

Prerequisites: Ed. 406, 407, and at least 12 credits in Agriculture.

Required of seniors in Agr. Ed.

Observation and teaching vocational agriculture under supervision; participation in the varied activities of the teacher of vocational agriculture.

Staff in Agricultural Education.

**Ed. 411. Evening Classes and Directed Teaching.**

0-5-0

Prerequisites: Ed. 406, 407, and at least 12 credits in Agriculture.

Required of seniors in Agr. Ed.

Community activities of teachers of vocational agriculture; organization, method, and directed teaching of evening and part-time classes. Mr. Cook.

**Ed. 412. Materials and Methods in Teaching Agriculture.** 0-5-0

Prerequisites: Ed. 406, 407, and 12 credits in Agriculture.

Required of seniors in Agr. Ed.

Use of illustrative and actual materials in teaching vocational agriculture; collection and preservation of specimens; chart making; practice in use of materials in directed teaching.

**Ed. 426. Secondary Education in Agriculture.** 0-0-3

Prerequisites: Ed. 303 or 304, and 6 other credits in Education.

Agricultural education in the United States; school organization; agricultural occupations. Mr. Cook.

**Ed. 460. Special Problems in Teaching Agriculture.** 3 or 3 or 3

Prerequisites: Ed. 406, 407, or equivalent.

Planning programs of work and courses of study; collecting and preparing materials for teaching; making teaching plans. Mr. Cook and Staff.

**Ed. 461 (a-b). Trends in Teaching Vocational Agriculture.** 3 or 6 credits

Prerequisites: 18 credits in Education, including 5 in Agricultural Education.

Procedures in teaching vocational agriculture; out-of-school farm youth; evening-class instruction and the F. F. A.

Staff in Agricultural Education.

**Ed. 462 (a-b). Course of Study Problems.** 3 or 6 credits

Prerequisites: 18 credits in Education, including 5 in Agricultural Education.

Selection and organization of subject matter in vocational agriculture; supervised practice. Staff in Agricultural Education.

**Ed. 463 (a-b). Guidance and Individual Instruction.** 3 or 6 credits

Prerequisites: 18 credits in Education, including 5 in Agricultural Education.

Individualized instruction applied to vocational agriculture; agricultural occupations, guidance, and counseling with special reference to pupils in vocational agriculture. Staff in Agricultural Education.



### Courses for Graduates Only

**Ed. 516. Problems in Agricultural Teaching.** 3 or 3 or 3

Prerequisites: Ed. 407, and at least 12 other credits in Education and Agriculture. Experience in Agricultural Teaching will be accepted in lieu of Ed. 407.

Investigations, reports, and a critical evaluation of present practices; course adapted to individual interests and needs.

Staff in Agricultural Education.

**Ed. 517. Principles of Agricultural Education.** 3 or 3 or 3

Prerequisite: Eighteen credits in Education and Agriculture. Permission to register.

Principles and practices in agricultural education in the light of educational research and of changing rural conditions.

Mr. Cook.

**Ed. 520. Agricultural Education Seminar.** 1-1-1

Prerequisite: Eighteen credits in Education.

A critical review of current articles and books of interest to students of agricultural education.

Staff.

**Ed. 521. Research in Education.** 3-3-3

Prerequisite: Eighteen hours in Education and permission to register.

One or more research problems under the guidance of a member of the staff.

Staff.

## INDUSTRIAL EDUCATION

### AND

### INDUSTRIAL ARTS

**Ed. (I.A.) 105 a, b, c. Industrial Arts Drawing.** 3-3-3

Required of freshmen in Industrial Arts Education.

Fundamentals of pictorial representation, such as layout work, machine, and architectural drawing.

Mr. Boshart.

**Ed. (I.A.) 106 a, b, c. Orientation in Industrial Arts.** 3-3-3

Required of freshmen in Industrial Arts Education.

Provides initial experiences for students interested in teaching Industrial Arts in the secondary school; emphasizes the importance and relation of Industrial Arts to other areas in the school and to individual development.

Mr. Ludington.

**Ed. (I.A.) 205. Industrial Arts Design. 0-0-3**

Prerequisite: Ed. (I. A.) 105, a, b, c.

Required of sophomores in Industrial Arts Education.

Design and construction in a variety of industrial materials; stressing individual expression and appreciation of well designed industrial products.

Mr. Boshart.

**Ed. (I.A.) 206a, b, c. Laboratory Problems in Industrial Arts. 3-3-3**

Prerequisites: Ed. (I. A.) 105 a, b, c, and I. A. 106 a, b, c.

Required of sophomores in Industrial Arts Education.

Explorations in drawing, planning, woodwork, metal work, and electricity.

Messrs. Ludington and Boshart.

**Ed. (I.A.) 306 a, b, c. Laboratory Problems in Industrial Arts. 3-3-3**

Prerequisites: Ed. (I. A.) 105 a, b, c; Ed. (I. A.) 106 a, b, c, and Ed. (I. A.) 206 a, b, c.

Required of all juniors in Industrial Arts Education.

Advanced hand and machine tool techniques in printing, electricity, and metal work; stressing the development of master craftsmanship and an understanding of related social-economic problems.

Mr. Ludington.

**Ed. 344. Problems in Secondary Education. 3-0-0**

Prerequisites: Ed. 303, and 6 other credits in Education.

Required of juniors preparing to teach industrial subjects.

Problems of secondary education, with special reference to the relationships of industrial subjects with the other elements of the school program.

Mr. Boshart.

### Courses for Graduates and Advanced Undergraduates

**Ed. 416. Local Survey; Planning a Program. 0-3-0**

Methods of surveying local occupations; use of the findings to plan a program of Industrial Education.

Mr. Smith.

**Ed. 422. Methods of Teaching Industrial Subjects.** 3-0-0

Prerequisites: Ed. 304, 344.

Required of seniors in Industrial Arts Education and those preparing to teach vocational classes in trades and industries.

Principles of teaching in the classroom or shop; intended for those who are teaching or preparing to teach shop and drawing courses.

Messrs. Boshart or Ludington.

**Ed. 427. Philosophy of Industrial Education.** 0-3-0

The philosophy of industrial education, a review of Federal and State legislation pertaining to industrial education; part-time, all-day trade, general industrial, and evening schools.

Mr. Smith.

**Ed. 433. Field Work in Secondary Education.** 0-3-0

Prerequisites: Ed. 344, and 6 credits in Education.

Required of juniors in Industrial Arts Education.

A study of pupil-teacher-community relationships at the secondary school level involving observations, visits, reports, readings, and conferences.

Staff.

**Ed. 440. Vocational Education.** 3 or 3 or 3

Prerequisites: Ed. 303, 344, and 6 additional credits in Education.

Elective for students in Industrial Arts and Industrial Education.

Problems of vocational education; underlying philosophy; its place in our system of education; the laws governing prevailing practices and administration; agricultural, homemaking, industrial, and commercial vocations; deals with all-day, evening, part-time, and general continuation class work.

Staff.

**Ed. 444. Observation and Directed Teaching of Industrial Subjects.**

3-3-0 or 0-3-3

Prerequisites: Ed. 422, 433.

Required of students who desire an "A" grade certificate to teach industrial subjects.

Observation of and active participation in phases of teacher activity; students will work in actual situations under supervision.

Staff.

**Ed. S., Ex. 452. Industrial Arts in the Elementary School.** 3 credits

Prerequisite: 12 credits in education and the consent of the instructor.

For advanced undergraduate and graduate students; organized to help students gain insights into the materials, processes, and products of industry fundamental to an understanding of major problems of living.

Staff.

**Ed. (I.A.) 470 a, b, c. Laboratory Problems in Industrial Arts. 3 or 3 or 3**

An elective course for undergraduates and graduates with consent of the instructor.

Advanced laboratory conducted on general shop or laboratory of industries basis. Mr. Ludington.

**Ed. S., Ex. 480. Modern Industries. 3 credits**

Prerequisite: 12 credits in education and consent of the instructor.

Elective course for advanced undergraduate and graduate students in industrial arts. Designed to assist teachers in guiding students to sources of information relative to various modern industries. Staff.

**Ed. 482. Curriculum Problems in Industrial Arts. 3-0-0**

A course for advanced undergraduate and graduate students in Industrial Arts Education.

Planning and organizing of learning experiences in the Industrial Arts area. Mr. Ludington.

**Ed. 483. Instructional Aids and Devices. 0-3-0**

Prerequisites: Ed. 304, and 6 other credits in Education.

Required of those intending to teach Industrial Arts or Industrial Education, and those who because of trade experience desire to teach trade subjects.

Analysis of learning units, and the preparation of instructional aids and devices. Mr. Ludington.

**Ed. 484. Laboratory Planning and Equipment Selection. 0-0-3**

A course for advanced undergraduate and graduate students.

The physical planning of school shops and laboratories; selection of tools and equipment. Whenever possible, actual or contemplated school buildings will be used for class work. Mr. Ludington.

**Ed. 492. Individual Problems in Education. 3 credits**

An elective course for graduate students in Industrial Arts Education and Industrial Education, with consent of instructor.

Individual and group studies of one or more major problems in Industrial Arts and Industrial Education. Problems will be approached through the application of research techniques with final reports prepared in a form suitable for publication as a magazine article, technical or professional bulletin. Staff.

### Courses for Graduates Only

#### Ed. 510. Administration and Supervision of Vocational Education.

Prerequisites: Ed. 304, 344, 420, 440, or equivalent. 3 or 3 or 3

For graduate students majoring in Education.

Administrative and supervisory problems of vocational education; practices and policies of Federal and State offices; organization and administration of city and consolidated systems. Staff.

#### Ed. 514. Modern Principles and Practices in Secondary Education.

3 or 3 or 3

Required of graduate students in Guidance, Industrial Arts, and Industrial Education.

Foundations of modern programs of secondary education; purposes, curriculum, organization, administration, and the place and importance of the high school in the community in relation to contemporary social forces.

Mr. Ludington.

#### Ed. 521. Research in Education.

3 or 3 or 3

The student will make a study of one or more research problems under the supervision of some member of the staff of the Department of Teacher Education. The course will be selected on the recommendation of the member of the faculty with whom the student plans to carry on the study.

Staff.

#### Ed. 530. Philosophy of Industrial Arts.

3 or 3 or 3

Required of all graduate students in Industrial Arts Education; elective for others with consent of the instructor.

Current and historical developments in Industrial Arts; philosophical concepts, functions, scope, criteria for the selection and evaluation of learning experiences, laboratory organization, student personnel programs, community relationships, teacher qualifications, and problems confronting the Industrial Arts profession.

Mr. Ludington.

### Occupational Information and Guidance

#### Ed. 103. Occupations.

3 or 3 or 3

Required in Occupational Information and Guidance. Elective for others.

A view of the field of occupations, supplying facts which young persons are entitled to have in deciding upon their life work.

Mr. Boshart.

## Courses for Graduates and Advanced Undergraduates

Ed. 420. Philosophy of Guidance. 3 or 3 or 3

Prerequisite: 12 credits in education.

The place of guidance in the school program covering the elementary, junior high, and senior high divisions. It will treat of the development of educational and vocational guidance, the relation of personnel work, principles and practices of guidance in employment, and child legislation.

Mr. Boshart.

Ed. 423. Methods of Teaching Occupations. 3-0-0

Prerequisites: Ed. 304, 344.

Required of seniors expecting to teach occupational information and guidance and elective for others who are interested.

Principles of teaching occupational information and guidance; the selection and preparation of materials; the literature available, and methods of presentation.

Messrs. Boshart and Smith.

Ed. 424. Occupational Studies. 0-0-3

Prerequisite: 12 credits in Education.

Intended to acquaint teachers with the field of occupations; selection of suitable instructional materials and its presentation to pupils; analyses of leading groups of occupations.

Mr. Boshart.

Ed. 433. Field Work in Secondary Education. See page 224

Ed. 481. Character Education. 0-0-3

Prerequisite: 12 credits in Education.

Factors influencing character development; opportunities and responsibilities of the school for the conception and attitudes fundamental to good conduct, trends, materials, and procedures.

Mr. Cook.

Ed. 490. Individual Problems in Guidance. 3 or 3 or 3

Elective for advanced undergraduate and graduate students interested in the guidance field.

Intended for individual or group studies of one or more of the major problems in guidance and personnel work. Problems will be selected to meet the interests of individuals of the class and approached through research techniques with the idea of preparing suitable material for distribution in mimeographed or bulletin form.

Staff.

### Courses for Undergraduates

Ed. 512. Problems in Counseling. 0-0-3

Prerequisite: Ed. 420, 432, or equivalent.

Intended for teachers of experience and those interested in the problems of guidance in school and industry; attention to group and individual counseling as applied to the junior and senior high schools, colleges, or placement offices; procedures of conducting interviews and conferences.

Mr. Boshart.

Ed. 521. Research in Education. see page 226

### PSYCHOLOGY

Ed. 303, 304. Educational Psychology. 3-3-0

(For description of course see Psychology 303, 304) Mr. Moffie.

Ed. 476. Psychology of Adolescence. 0-0-3

(For description of course see Psychology 476) Mr. Moffie.

### ELECTRICAL ENGINEERING

#### Courses for Undergraduates

E. E. 201, 202, 203. Electrical Engineering Fundamentals. 3-3-3

Prerequisite: Math. 102.

Required of sophomores in E. E. Concurrent with Phys. 201, 202, 203.

Fundamental laws of electric, magnetic and dielectric circuits; problem drill. Timbie and Bush: *Principles of Electrical Engineering*.

Messrs. Browne and Fouraker.

#### Courses for Advanced Undergraduates

E. E. 301, 302, 303. Electrical Engineering. 4-4-4

Prerequisite: E. E. 202.

Required of juniors in E. E.

Principles, performances and characteristics of direct-current apparatus; theory of periodic currents, alternating-current circuits and systems. Kloeffler, Brennenman and Kerchner: *Direct Current Machinery*. Bryant and Correll: *A. C. Circuits*. Messrs. Fouraker and Pearsall.

**E. E. 311, 312, 313. Electrical Engineering Laboratory, I. 2-2-2**

Required of juniors in E. E. Concurrent with E. E. 301, 302, 303.

A laboratory course coördinated with E. E. 301. Ricker and Tucker, *Electrical Engineering Laboratory Experiments*.

Messrs. Lear, Pearsall, Keever, Glenn, and Nichols.

**E. E. 315, 316. Fundamentals of Electronics. 0-4-4**

Prerequisite: E. E. 301.

Required of Juniors in E. E.

The fundamental principles of electron tubes and their associated circuits. Eastman: *Fundamentals of Vacuum Tubes*. Mr. Brown.

**E. E. 320, 321, 322. Elements of Electrical Engineering. 3-3-0 or 3-3-3**

Prerequisites: Math. 202, Phys. 203.

Required of juniors in Aero E., Chem. E. and C. E., and of seniors in Cer. E., Gen. E., Geol. E., I. E., and M. E.

Theory and problems in applied electricity; motor characteristics and industrial applications.

Messrs. Lear, Keever, Pearsall, Glenn, and Winkler.

**E. E. 325, 326, 327. Electrical Engineering Laboratory, II. 1-1-1**

Required of Seniors in Gen. E., I. E., and M. E.

A laboratory course coördinated and concurrent with E. E. 321, 322, 323.

Messrs. Lear, Keever, Pearsall, Glenn, Winkler, Nichols.

**E. E. 343. Electrical Equipment of Buildings. 0-0-3**

Prerequisite: Phys. 203.

Required of seniors in C. E. in Construction and Building Materials Options and Architectural Engineering.

Wiring of buildings for light and power; selection of motors and lighting equipment. Moyer and Wostrel: *Industrial Electricity and Wiring*.

Messrs. Lear and Winkler.

### Courses for Graduates and Advanced Undergraduates

**E. E. 401, 402. Alternating-Current Machinery. 4-4-0**

Prerequisite: E. E. 303.

Required of seniors in E. E.

Principles and characteristics of alternating current-machinery. Bryant and Johnson: *Alternating-Current Machinery*.

Messrs. Fouraker and Keever.



**E. E. 403. Electric Transmission.**

0-0-4

Prerequisite: E. E. 402.

Theory and characteristics of electric circuits for transmission of power.  
 Bryant and Correll: *Alternating Current Machinery*.

Messrs. Fouraker and Keever.

**E. E. 411, 412, 413. Electrical Engineering Laboratory.**

2-2-2

Required of seniors in E. E. Concurrent with E. E. 401, 402, 403.

A laboratory course coördinated with classroom work. Ricker and Tucker,  
*Electrical Engineering Laboratory Experiments*.

Messrs. Keever, Pearsall, Glenn, and Winkler.

**E. E. 421, 422, 423. Electric Power Applications (Optional with**

E. E. 425, 426, 427).

3-3-3

Prerequisites: E. E. 303.

Selection of electric equipment for industrial applications, control equip-  
 ment; electric traction; electric power plants. Mr. Browne.

**E. E. 425, 426, 427. Electric Communication (Optional with**

E. E. 421, 422, 423). Concurrent with E. E. 445, 446, 447.

4-4-4

Prerequisites: E. E. 303.

Circuits and equipment for wire communication; radio and carrier current  
 systems. Everitt: *Communication Engineering*.

Messrs. Fouraker and Glenn.

**E. E. 437. Illumination.**

.....0-0-3

Prerequisites: E. E. 303.

Required of seniors in E. E.

Characteristics of electric lamps; electric lighting systems. Kunerth:  
*Textbook of Illumination*. Mr. Léar.

**E. E. 441, 442, 443. Electrical Measurements in Industry.**

3-3-3

Prerequisite: E. E. 303 or E. E. 322 or E. E. 333.

Theory and practice of electrical measurements in industry, including  
 electrical methods applied to measurement of nonelectric values.

Mr. Brown.

**E. E. 445, 446, 447. Ultra High Frequency Techniques. 4-4-4**

Prerequisites: E. E. 401, 411, with E. E. 425, 426, 427 concurrently.

The production, control and use of ultra high frequency radio signals for communication and detection. Brainerd, *et al*: *Ultra-High Frequency Techniques*.  
Messrs. Brown and Glenn.

**E. E. 453. Power Network Calculations. 0-0-3**

Prerequisite: E. E. 403.

The method of symmetrical components applied to fault calculation in power system networks.  
Mr. Brown.

**Courses for Graduates Only**

**E. E. 501, 502, 503. Fundamental Principles in Electrical Engineering. 3-3-3**

Prerequisites: E. E. 402, 403.

Review of fundamentals involved in the more complex problems encountered in electrical engineering.  
Messrs. Fouraker, Brown.

**E. E. 505, 506, 507. Electrical Engineering Seminar. 1-1-1**

Prerequisite: Graduation in E. E.

A series of papers and conferences of junior instructional staff and students who are candidates for advanced degrees in electrical engineering.  
Messrs. Browne, Brown.

**E. E. 521, 522, 523. Engineering Electronics. 4-4-4**

Prerequisite: Graduation in E. E.

Electron tubes in industry, including studies of various types of tubes and their associated circuits.  
Mr. Brown.

**E. E. 531, 532, 533. Illumination Engineering. 3-3-3**

Prerequisite: Graduation in E. E.

Advanced principles of Illumination Engineering. Mr. Brown.

**E. E. 550. Electrical Engineering Research. 3-3-3**

Prerequisite: Graduation in E. E.

Individual research in the field of Electrical Engineering.  
Messrs. Browne, Brown.

## ENGINEERING MECHANICS

## Courses for Advanced Undergraduates

E. M. 311. Engineering Mechanics. 3-0-0 or 0-3-0 or 0-0-3

Prerequisite: Math. 201.

Co-requisites: Math. 202 and Phys. 201.

Required of all students in Engineering except Cer. E., Ch. E., Geol. E., and I. E.

Statics and Friction: Study of concurrent, parallel and nonconcurrent systems of both coplaner and noncoplaner forces; the application of statics to the solution of fundamental engineering problems, including statical friction. Seely and Ensign: *Analytical Mechanics for Engineers*.

Messrs. Smith, Conner, Gaylord, and Farlow.

E. M. 312. Engineering Mechanics. 3-0-0 or 0-3-0 or 0-0-3

Prerequisites: E. M. 311 and Math. 202.

Co-requisites: Math. 303.

Required of all students in Engineering except Cer. E., Ch. E., Geol. E., and I. E.

Kinematics; centroids moments of inertia. Seely and Ensign: *Analytical Mechanics for Engineers*. Messrs. Smith, Conner, Gaylord, Farlow.

E. M. 313. Engineering Mechanics. 3-0-0 or 0-3-0 or 0-0-3

Prerequisites: E. M. 312 and Math. 303.

Required of all students in Engineering except Cer. E., Ch. E., Geol. E., and I. E.

Kinetics: The motions of particles of rigid bodies as they are affected by the action of unbalanced forces. The Newtonian laws of motion; work and energy; power, impulse and momentum; applications to special engineering problems: Seely and Ensign: *Analytical Mechanics for Engineers*.

Messrs. Smith, Conner, Gaylord, and Farlow.

E. M. 321. Strength of Materials. 0-3-0 or 0-0-3

Prerequisites: E. M. 302 or E. M. 312, and Math. 303.

Co-requisite: E. M. 313.

Required of all students in Engineering.

Stresses and strains in engineering materials; tension, compression, shear, and torsion; emphasis on the applications to engineering structures; bending moments and shear in simple beams; fibre stresses in beams and their distribution throughout the cross section. Timoshenko and McCullough: *Elements of Strength of Materials*.

Messrs. Smith, Conner, Gaylord, and Farlow.

**E. M. 322. Strength of Materials.**

3-0-0 or 0-0-3

Prerequisite: E. M. 321.

Required of all students in Engineering except Chem. E., E. E., Geol. E., and Ind. E.

A continuation of E. M. 321. Various methods for finding the deflection of beams; determination of stresses in statically indeterminate beams; the study of columns; combined stresses. Timoshenko and McCullough: *Elements of Strength of Materials*.

Messrs. Smith, Conner, and Gaylord.

**E. M. 330. Fluid Mechanics.**

3-0-0, 0-3-0, or 0-0-3

Prerequisites: E. M. 302 or E. M. 313.

Required of students in Aero. E., Ch. E., C. E., E. E., Geol. E., M. E.

A study of the fundamental principles of mechanics of fluids; properties of fluids; intensity of pressure; hydrostatic pressure on areas; applications of hydrostatics; kinematics of fluid flow; dynamics of fluid flow; applications of hydrokinetics; friction losses in pipes; flow through pipes; dynamic forces. Daugherty: *Hydraulics*.

Messrs. Conner, and Gaylord.

**E. M. 331. Hydraulic Machinery.**

3-0-0 or 0-3-0

Prerequisite: E. M. 330.

Required of students in E. E. and M. E.

The application of the principles of fluid mechanics to hydraulic pumping and power machinery; impulse and reaction type turbines; turbine laws and factors; water power plants; pumping and machinery, reciprocating and centrifugal pumps; efficiency, capacity, and selection of pumps. Daugherty: *Hydraulics*, and *Notes*.

Messrs. Conner, and Gaylord.

**E. M. 332. Hydraulic Structures.**

0-3-0 or 0-0-3

Prerequisite: E. M. 330.

The application of the principles of fluid mechanics to various hydraulic structures and measuring devices; buoyant force and flotation; weirs, orifices, gates; forces exerted by fluids; flow in open channels; models of open channel flow, flow in pipe lines. Daugherty: *Hydraulics*, and *Notes*.

Messrs. Conner, and Gaylord.

## Courses for Graduates and Advanced Undergraduates

E. M. 401. Advanced Strength of Materials. 3-0-0

Prerequisites: E. M. 320 or E. M. 322.

Elective for Engineering seniors and graduate students.

Detailed study of the deflections of beams; special types of beams; statically indeterminate systems. Timoshenko: *Strength of Materials*.

Mr. Smith.

E. M. 402. Advanced Fluid Mechanics. 0-3-0

Prerequisite: E. M. 330.

Elective for Engineering seniors and graduates.

A study of more advanced problems than taken up in E. M. 330; kinematics of fluid flow; conformal mapping; laminar and turbulent flow; the boundary layer; flow around immersed bodies; closed conduits. Instructor's notes and selected references.

Mr. Conner.

E. M. 404. Vibration Problems. 0-0-3

\*Prerequisites: E. M. 320 and 322, Math. 431a, or 431b.

Elective for Engineering seniors and graduate students.

Fundamental vibratory systems of one degree of freedom; balancing of rotating systems; calculation of critical speeds of rotating shafts; vibrating instruments; systems of several degrees of freedom. Den Hartog: *Mechanical Vibrations*.

Mr. Conner.

## Courses for Graduates Only

E. M. 501. Advanced Strength of Materials. 3-0-0

Prerequisites: E. M. 401, Math. 431a or 431b.

A study of more advanced problems than taken up in E. M. 320 or E. M. 322; energy of strain; Castigliano's Theorem; impact; Maxwell's Theorem; Mohr's circle. Timoshenko: *Strength of Materials*.

Mr. Smith.

E. M. 502. Applied Elasticity. 0-3-0

\*Prerequisites: E. M. 401, Math. 431a or 431b.

Stress analysis of machine parts; stress concentration; stress in curved bars; torsion and bending in prismatical bars; stress in thick-walled cylinders; fly wheels; shrink fits. Timoshenko: *Strength of Materials*.

Mr. Smith.

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\* Math. 411, 412 are desirable.

**E. M. 503. Applied Elasticity.** 0-0-3

\*Prerequisites: E. M. 502, Math. 431a or 431b.

Thin bars, plates and slabs in compression, tension, or combined compression and tension; built-up columns. Timoshenko: *Strength of Materials*.

Mr. Smith.

**E. M. 505. Research in Strength of Materials.** 3-3-3

Special problems and investigations.

Mr. Smith.

**\*E. M. 506. Research in Mechanical Vibrations.** 3-3-3

Prerequisite: E. M. 404.

Special problems and investigations.

Mr. Conner.

**\*E. M. 507. Research in Fluid Mechanics.** 3-3-3

Prerequisite: E. M. 402.

Special problems and investigations.

Mr. Conner.

**ENGLISH****Freshman English****Eng. 101, 102, 103. Composition.** 3-3-3

Required of all freshmen.

Grammar review and intensive practice in composition; reading and analysis of literary types, with emphasis upon both composition and appreciation; directed supplementary reading collateral with class study; exercises and reports; conferences.

Messrs. Cameron, Clark, Dade, Davis, Drake, Gibson, Harrison, Irwin, Kincheloe, Ladu, Marshall, Nickell, Robinson, Shelley, Timmerman, Wynn; Mrs. Allen, Mrs. Cell.

**Writing****Eng. 211. Business English.** 3 or 3 or 3

Prerequisite: Eng. 101, 102, 103.

Practical application of the principles of composition; types of letters; form, style, and tone of effective correspondence; intensive word study; conferences.

Messrs. Wilson, Davis, Shelley.

**Eng. 215. Principles of News and Article Writing. 3-0-3**

Prerequisite: Eng. 101, 102, 103. (Class limited to twenty students.)

Introduction to the writing of simple news articles; class criticism of non-technical newspaper and magazine articles. Vocabulary building; collateral reading.  
Mr. Wynn.

**Eng. 216. Advanced Article Writing. 0-3-0**

Prerequisite: Eng. 101, 102, 103, and 215 or equivalent.

A continuation of Eng. 215, with intensive practice in writing and criticizing nontechnical articles. Subjects determined by student's interest. Vocabulary building; collateral reading.  
Mr. Wynn.

**Eng. 222. Advanced Composition. 0-0-3**

Prerequisite: Eng. 101, 102, 103.

An analysis of the techniques and aesthetics of prose style plus a study of exposition, the short-story, and other forms of creative writing. Original compositions; conferences.  
Mr. Shelley.

**Eng. 321. Technical Writing I. (For students in Engineering.) 3 or 3 or 3**

Prerequisites: Eng. 101, 102, 103, 211, 231, and one term of literature.

Intensive practice in writing engineering reports, articles, and papers for public delivery; readings in essays and in technical periodicals. Term papers in library research and technical-report writing.  
Mr. Fountain.

**Eng. 323. Technical Writing II. (For students in Agriculture and Forestry.) 0-0-3**

Prerequisites: Eng. 101, 102, 103, and required sophomore English courses.

Fundamentals of style in professional writing. Reports, articles, papers. Term papers in library research and in professional reports.

Mr. Fountain.

### Speech

**Eng. 231. Public Speaking. 3 or 3 or 3**

Prerequisites: Eng. 101, 102, 103.

Speech organization and effective delivery; extempore speeches; audience motivation and use of motivating process; acquisition of ease before audience.  
Messrs. Paget, Fountain.

\* Math. 411, 412 are desirable.

- Eng. 236. Parliamentary Practice.** 0-2-0  
 Prerequisites: Eng. 101, 102, 103.  
 Not to be counted toward the fulfillment of any requirement in English.  
 Rules and customs of assemblies, including organization, motions; participation in and conduct of meetings; parliamentary strategy.  
 Mr. Paget.
- Eng. 237. Speech Adjustment.** 0-0-2  
 Prerequisites: Eng. 101, 102, 103.  
 Poise and pleasing communicative habits in all group contacts; habits of speech, posture, action, and language.  
 Mr. Paget.
- Eng. 331. Persuasion.** 3-0-0  
 Prerequisite: Eng. 231 or equivalent.  
 Psychological forces, methods of conciliation, securing and holding attention, and winning response; extempore speeches and discussions.  
 Mr. Paget.
- Eng. 332. Argumentation and Extemporaneous Speaking.** 0-3-0  
 Prerequisite: Eng. 231 or equivalent.  
 Analysis, brief-drawing and evidence, and methods of proof and refutation; fundamentals of conviction; naturalness and forcefulness; extempore speeches, debates, and discussions.  
 Mr. Paget.
- Eng. 333. Public Address.** 0-0-3  
 Prerequisite: Eng. 231 or equivalent.  
 Public speaking for special occasions, including speech of introduction, committee-room speech, after-dinner speech, speech at professional convention, political speech, formal sales talk.  
 Mr. Paget.
- Eng. 334. Radio Speaking.** 0-0-2  
 Not to be counted toward the fulfillment of any requirement in English.  
 Prerequisites: English 231, or equivalent; approved admittance by the instructor.  
 A laboratory practice in the skills of radio speech; the physical properties of voice; diction; tempo; emotion.  
 Mr. Wynne.



## Literature

- Eng. 261. English Literature I. 3-0-0  
 Prerequisites: Eng. 101, 102, 103.  
 Chief masterpieces of English literature from *Beowulf* through Shakespeare, with emphasis on social and historical backgrounds. Parallel readings and papers. Mr. Clark.
- Eng. 262. English Literature II. 3 or 3 - 0  
 Prerequisites: Eng. 101, 102, 103.  
 Significant prose and poetry of the seventeenth and eighteenth centuries, with emphasis on the contribution of the two centuries to modern thought. Parallel readings and papers. Messrs. Clark, Gibson.
- Eng. 263. English Literature III. 0 - 3 or 3  
 Prerequisites: Eng. 101, 102, 103.  
 Masterpieces of the nineteenth century, with emphasis on changing literary tastes and ideas; the impact of scientific development on thought and literature. Parallel readings and papers. Messrs. Clark, Gibson.
- Eng. 265. American Literature I. 3-0-0  
 Prerequisites: Eng. 101, 102, 103.  
 A study of chief American literary productions in their historical setting, from the early colonial period to 1840. Mr. Ladu.
- Eng. 266. American Literature II. 0-3-0  
 Prerequisites: Eng. 101, 102, 103.  
 A study of chief American literary productions in their historical setting, from 1840 to 1900. Mr. Ladu.
- Eng. 267. American Literature III. 0-0-3  
 Prerequisites: Eng. 101, 102, 103.  
 A study of the leading American writers of the present century, with a relation of their works to the social background of the period. Mr. Ladu.
- Eng. 271. The English Novel. 3-0-0  
 Prerequisites: Eng. 101, 102, 103.  
 Analysis of representative novels of England and America, chosen to illustrate the development of the form and to provide a background for appreciating the modern novel. Mr. Drake.

**Eng. 272. Modern Drama** 0-0-3

Prerequisites: Eng. 101, 102, 103.

Modern plays, beginning with Ibsen; contemporary English and American productions. Mr. Clark.

**Eng. 273. The Development of the Drama.** 0-0-3

Prerequisites: Eng. 101, 102, 103.

Origin, progress, and influence; plot, characterization, and interpretation of certain readings. Staff.

**Eng. 275. Southern Writers.** 3-0-0

Prerequisites: Eng. 101, 102, 103.

An introduction to Southern culture as revealed in poetry from Poe to John Crowe Ransom and in the regional novel and short story; readings in the contemporary Southern essay dealing with social, political, and literary problems. Mr. Kincheloe.

**Eng. 276. English Poetry, 1830-1900.** 0-3-0

Prerequisites: Eng. 101, 102, 103.

A study of major poets writing in an age of scientific progress and social change. Emphasis on Browning, Tennyson, and Arnold. Parallel readings and papers. Staff.

**Eng. 281. Literary Masterpieces.** 3-0-0

Prerequisites: Eng. 101, 102, 103.

A background for the enjoyment of literature; an introduction to its appreciation and criteria. Mr. Harrison.

**Eng. 282. The Short-Story.** 0-0-3

Prerequisites: Eng. 101, 102, 103.

An appreciation of the present-day short-story through examination of development, structure, type, and style; a comprehensive term paper, or its equivalent in original short fiction. Mr. Wynne.

**Eng. 283. The Bible as Literature.** 0-3-0

Prerequisites: Eng. 101, 102, 103.

Selected books of the Old and New Testaments (King James Version) as literary and historical documents. Mr. Cameron.

Eng. 285. **Shakespeare.** 3-0-0

Prerequisites: Eng. 101, 102, 103.

An analysis of principal plays. Reports on parallel readings.

Mr. Clark.

Eng. 286. **The Romantic Period.** 0-3-0

Prerequisites: Eng. 101, 102, 103.

English literature from 1790 to 1830, with special emphasis on Wordsworth, Coleridge, Byron, Shelley, and Keats; collateral reading; reports.

Mr. Clark.

Eng. 287. **Modern Biography.** 0-3-0

Prerequisites: Eng. 101, 102, 103.

A study of short modern biographies by representative American and British writers; collateral reading in longer biographical works; reports and assignments for investigation.

Mr. Shelley.

Eng. 291. **The Eighteenth Century.** 0-3-0

Prerequisites: Eng. 101, 102, 103.

Chief masterpieces of English literature from Alexander Pope to nineteenth century; collateral reading; reports.

Mr. Irwin.

Eng. 292. **Contemporary British Literature.** 0-0-3

Prerequisites: Eng. 101, 102, 103.

An introduction to chief figures in contemporary British literature; Kipling, Galsworthy, Wells, Bennett, Conrad. Collateral readings; term paper.

Mr. Ladu.

## ETHICS AND RELIGION

### Courses

Rel. 301. **Introduction to Religion.** 3-0-0

Characteristics of the major religious sects of America and brief survey of recent trends in religious thought.

Mr. Hicks.

Rel. 302. **The Life of Jesus.** 3-0-0

The career of Jesus of Nazareth as recorded in the Synoptic Gospels and interpreted against the religious, economic, and political background of the age in which Jesus lived.

Mr. Hicks.

**Rel. 303. The Teachings of Jesus.**

0-3-0

The ethical and religious teachings of Jesus as recorded in the Synoptic Gospels, with special emphasis on the contrast between the teachings of Jesus and his contemporaries.

Mr. Hicks.

**Rel. 304. Comparative Religion.**

0-3-0

Brief history, general characteristics, and social significance of living religions of the world.

Mr. Hicks.

**Ethics 405. Social Ethics.**

0-0-3

Prerequisite: Six term credits in Religion or related fields.

Review of the ethical codes of the larger professional groups, with analysis of the nature, evolution, and significance of moral values.

Mr. Hicks.

**Rel. 406. Problems of Religion.**

0-0-3

Prerequisite: Six term credits in Religion or related fields.

Religious verities in an age of science and the problems of the church in modern times.

Mr. Hicks.

**Ethics 407. Ethical Problems of Adolescence.**

3 credits

Prerequisite: Six term credits in Religion or related fields.

Typical adjustment problems of modern youth, with special consideration to adolescent and pre-adolescent sex instruction and guidance.

Mr. Hicks.

**Rel. 408. Christian Personality in Its Psychological Aspects.**

3 credits

Prerequisite: Six term credits in Religion or related fields.

An analysis of the psychological validity of the principal ethical teachings of the Sermon on the Mount with emphasis on the relationship of religious attitudes and practices to mental and emotional stability and maturity.

Mr. Hicks.

**Ethics 409. Problems of Marital Adjustment.**

3-0-0 or 0-3-0 or 0-0-3

Prerequisite: Six term credits in biological or social science. Sections limited to 25 students.

The practical application of pertinent findings of biological and social science to personal problems of premarriage and postmarriage adjustment. Lectures, discussions, and personal conferences.

Mr. Hicks.

## EXPERIMENTAL-STATISTICS

## Courses for Graduates and Advanced Undergraduates

**Stat. 401, 402. Statistical Laboratory.** 1-1-0

To accompany Stat. 412, 413 or Ec. 408, 409.

Use of calculating machines and of punched-card tabulation equipment; short-cut machine methods; experience in handling large sets of data.

Mr. Anderson.

**Stat. 411. Introduction to Experimental-Statistics.** 3-0-0

Collection, tabulation, presentation, and interpretation of experimental data. A course designed for advanced students in applied sciences who have had no theoretical background in statistics.

Miss Cox.

**Stat. 412, 413. Experimental-Statistics.** 0-3-3

Prerequisite: Sta. 411 or Ec. 409.

The application of statistical techniques such as sampling, regression and analysis of variance and covariance to experimental data.

Mr. Rigney.

**Stat. 421, 422, 423. Mathematical Statistics.** 2-2-2

Prerequisite: Math. 303.

Averages, moments, correlation, probability; the binomial, normal and Poisson laws; distribution of statistics, sampling of population, Sheppard's corrections and curve fitting.

Mr. Clarkson.

**Stat. 431. Design of Experiments.** 3 or 3 or 3

Prerequisite: Stat. 412.

Fundamental principles of designs; randomized blocks, Latin squares, split-plot and factorial designs; individual comparisons, components of error and confounding. Application to problems in biological and applied fields.

Miss Cox.

**Stat. 441, 442, 443. Methods of Analysis of Economic Data.** 3-3-3

Prerequisite: Math. 112.

Review of algebra and trigonometry and the development of the fundamentals of calculus appropriate to problems in the fields of economics. Statistical analysis of economic data—distributions, averages, dispersion, correlation and regression, index numbers and tests of significance.

Mr. Anderson.

**Stat. 451. Statistical Analysis of Social Data.** 3-0-0 or 0-0-3

Prerequisite: Stat. 412.

Sampling social data, rural surveys and testing methods; analysis of variance and relationships; population studies. Application to problems in the fields of sociology, psychology and education. Mr. Hamilton.

### Courses for Graduates Only

**Stat. 511, 512, 513. Special Problems.** 1 to 3-1 to 3-1 to 3

Development of techniques for specialized cases, particularly in connection with thesis problems. Staff.

**Stat. 531. Design and Analysis of Samplings.** 3-0-0

Prerequisite: Stat. 441.

Sampling from a homogeneous population; size of sample; structure of sampling investigations. Mr. Hendricks.

**Stat. 532, 533. Crop Forecasting and Estimation.** 0-3-3

Prerequisite: Stat. 531.

Methods used to select variables related to crop forecasting and estimating; selection techniques.

**Stat. 542, 543. Experimental Designs.** 0-3-3

Prerequisites: Stat. 413, 431.

Confounding, quasi-factorial designs, incomplete blocks and lattice squares. Pasture, field, greenhouse, animal, human and long-time experiments. Survey of type of designs available. Experimental results with appropriate methods of analysis and valid interpretations. Miss Cox.

**Stat. 552, 553. Econometric Methods.** 0-3-3

Prerequisites: Stat. 413, 441.

Mathematical formulation and exposition of demand, laws of production, monopoly and taxation; random element, seasonal and cyclical variations; trend, orthogonal polynomials and correlation of time series.

Mr. Anderson.

**Stat. 562. Psychometric Methods.** 0-3-0

Prerequisites: Stat. 413, 451.

Rating scales; mental-test methods; item and factor analysis; standard partial regression coefficients and functional relationships.

Stat. 571, 572, 573. Advanced Mathematical Statistics. 3-3-3  
Prerequisite: Stat. 423.

Theory of errors, maximum likelihood, estimation, least squares and distribution theory.

Stat. 581, 582, 583. Seminar. 1-1-1  
Staff.

Stat. 591, 592, 593. Research. 3-3-3  
Staff.

## FIELD CROPS (AGRONOMY)

### Courses for Undergraduates

F. C. 202. General Field Crops. 0-3-0 or 0-0-3  
Required of sophomores in Agriculture.

A standard introductory course, with emphasis given to the economic production of field crops as used in well-balanced cropping systems.

Mr. Stuart.

F. C. 211. Cotton. 3-0-0  
Required of sophomores in Textiles.

History, botany, and physiology of the cotton plant; comparative study of varieties; microscopic studies of the fiber; physical properties of the fiber as it affects milling quality.

Mr. Stuart.

F. C. 212. Cotton Classing I. 0-3-0  
Required of sophomores in Textile Manufacturing, Chemistry and Dyeing, and Designing.

Universal standards of American upland cotton for grade and staple; factors that determine grade, and their relative value; practice in classing and stapling from three to five thousand samples of cotton.

Staff.

### Courses for Advanced Undergraduates

F. C. 302. Cereal Crops. 0-3-0  
Required of Field-Crops majors.

Advanced study of the various factors to be considered in the economic production of corn and small grains.

Mr. Middleton.

**F. C. 312. Tobacco Production.** 0-3-0

Elective for juniors and seniors in Agriculture.

History, production, adaptation, type, and varieties of tobacco; its cultivation, harvesting, grading, and marketing. Laboratory consists of variety studies, and the grading of tobacco. Mr. Lutz.

**F. C. 323. Cotton Production.** 0-0-3

Elective for juniors and seniors in Agriculture.

History, production, adaptation, type, and varieties of cotton; its cultivation, harvesting, grading, and marketing. Laboratory consists of variety studies, and the classing of cotton lint. Mr. Stuart.

**Courses for Graduates and Advanced Undergraduates**

**F. C. 402. Cotton Classing II.** 0-3-0

Elective for juniors and seniors in Agriculture.

A study of the universal standards of American upland cotton for grade and staple; factors that determine grade and how to improve them; practice classing from three to five thousand samples of North Carolina cotton. Staff.

**F. C. 441. Seed Judging.** 3-0-0

Elective for juniors and seniors in Agriculture.

Advanced study of quality in crop seeds and the standards for seed certification; arranging and judging crop exhibits. Mr. Stuart.

**F. C. 443. Pastures and Forage Crops.** 0-0-4

Prerequisite: F. C. 202.

Required of Field Crop, Soil, and Animal Production majors.

An advanced study of the production and preservation of the principal forage crops. Special attention is given to the production and maintenance of pastures. Mr. Lovvorn.

**F. C. 451. Market Grading of Field Crops.** 3-0-0 or 0-3-0

Required of students in Animal Production.

A study and application of the Federal Standards for Market grades as applied to field crops. Mr. Stuart.



**F. C. 461. Taxonomy of Field Crops. 3-0-0 or 0-0-3**

Elective for juniors and seniors in Agriculture.

Origin, botanical classification, identification, and adaptation of the commercially important crops and their varieties grown in America.

Mr. Stuart.

**F. C. 463. Plant Breeding. 0-3-0**

Prerequisite: Zool. 411.

Required of students in Field Crops, Floriculture, Plant Pathology, Pomology and Vegetable Gardening.

Lectures, field and laboratory exercises, including methods and principles of plant breeding.

Mr. Gregory.

**F. C. 491, 492, 493. Special Problems. 3-3-3**

Prerequisite: Admittance only with consent of instructor.

Special problems in various phases of crop investigation. Problems selected or assigned; emphasis on review of recent and current research.

Staff.

### Courses for Graduates Only

**F. C. 503. Research Methods in Agronomy. 0-0-3**

Prerequisite: Stat. 412.

Planning and conducting research and interpretations of the data in agronomic fields.

Mr. Rigney.

**F. C. 523. Cytogenetics. 0-0-4**

Prerequisite: Zoöl. 411, 412, and Bot. 451 or Zoöl. 441.

Given coöperatively by Agronomy and Botany Departments.

The principles and techniques of cytology as they are related to the genetics of economic plants; a survey of the major cytogenetic contributions to plant improvement and to theories of phylogeny.

Mr. Smith.

**F. C. 531, 532, 533. Seminar. 1-1-1**

Prerequisite: Graduate standing in Field Crops.

Scientific articles, progress reports in research, and special problems of interest to agronomists will be assigned, reviewed, and discussed by students and members of the Agronomy Staff.

**F. C. 541, 542, 545. Research.**

Prerequisite: Graduate standing in Field Crops.

A study of special problems and methods of investigation. A student may select a problem in any phase of crop production or breeding. By arrangement.

Research in specialized phases of Field Crops.

## FORESTRY

### Courses for Undergraduates

**For. 101, 102, 103. Elementary Forestry. 1-1-1**

Required of freshmen in Forestry.

The nature and development of forests of the world, with special study of the forests of the United States; a correlation of all sciences required in forestry; field trips included. Mr. Hofmann.

**For. 111. Principles of Farm Forestry. 3-0-0**

Required of sophomores in Agriculture.

Elective for junior and senior students not in Forestry.

The theory and practice of forestry with special reference to the handling of farm woodlands and the utilization of their products; the place of forestry in farm management and the agricultural economy.

Mr. Chalfant.

**For. 202. Wood Technology. 0-3-0**

Required of sophomores in Forestry.

Microscopic slides of the conifers and broad-leaved trees are studied in order to determine the occurrence, form, and structure of the wood elements. Identification by means of the hand lens is especially emphasized.

Mr. Slocum.

**For. s204. Silviculture. 3 credits**

Prerequisites: Bot. 211, 213.

Sophomore summer camp.

Growth and development of forest stands: establishment and measurement of sample plots. Messrs. Miller, Slocum.

**For. s214. Dendrology.** 3 credits

Prerequisites: Bot. 211, 213.

Sophomore summer camp.

Identification and study of trees in Piedmont, Coastal, and Mountain sections of North Carolina. Messrs. Slocum, Miller.

**For. 301. Timber Preservation.** 3-0-0

Prerequisite: For. 202.

Elective for juniors and seniors in Forestry.

Lumber and timber preservatives and their use; methods of preservation; relation of preservation to forestry and industry. Mr. Slocum.

### Courses for Advanced Undergraduates

**For. s304. Mensuration.** 3 credits

Prerequisites: C. E. 221, 222.

Sophomore summer camp.

Collection of field data for stand and yield tables, stem analysis, and timber surveys. Messrs. Slocum, Miller.

**For. 311. Silviculture I.** 3-0-0

Required of juniors in Forestry.

Factors affecting tree growth and distribution; forest regions, sites, stands, and types; silvical requirements of important tree species.

Mr. Miller.

**For. 312. Silviculture II.** 0-3-0

Required of juniors in Forestry.

Production, collection, extraction, storage, and planting of forest-tree seeds. Mr. Slocum.

**For. 313. Nursery Practice.** 1 or 1 or 1

Preparation, seeding, watering, and weeding of seed beds in school nursery. Mr. Slocum.

**For. 321. Forest Products.** 3-0-0

Prerequisite: For. 202.

Required of seniors in Forestry.

The source and method of obtaining derived and manufactured forest products other than lumber. Mr. Wyman.

**For. 322. Naval Stores.** 0-3-0

Elective for juniors.

Methods of turpentineing woods practices; factors influencing oleoresin yields; distilling practices; integration with other forest products utilization.

Mr. Wyman.

**For. 323. Forest Utilization.** 0-0-2

Required of seniors in Forestry.

The problems of more complete utilization of forest resources; utilization of present waste in commercial practice.

Mr. Wyman.

**For. 332. Forest Policy.** 0-3-0

Elective for juniors in Forestry.

State and federal forest legislation; timber law, illustrated by court cases.

Mr. Miller.

**For. 333. Methods of Research in Forestry.** 0-0-3

Prerequisite: For. s204.

Elective for juniors in Forestry.

Methods of research used by the United States Forest Service, experiment stations, the Madison Laboratory, and State and private research organizations; sample plot technique.

Mr. Miller.

**For. 342. Forest Protection and Improvements.** 0-3-0

Prerequisite: For. s204.

Required of juniors in Forestry.

Organization and operation of forest fire prevention and control methods. Forest road and telephone line construction and maintenance.

Mr. Chalfant.

**Courses for Graduates and Advanced Undergraduates**

**For. 402, 403. Mensuration I, II.** 3-3-0

Prerequisite: For. s304.

Required of juniors in Forestry.

The measurement of timber, both standing and felled; log rules, form factors, stem analysis, and growth.

Methods of making volume, growth, and stand tables; increment and yield studies; development of stand and yield tables from field data.

Mr. Slocum.

**For. 411. Silviculture III.**

Prerequisite: For. 312.

Required of seniors in Forestry.

Methods of cutting to secure natural regeneration; intermediate cuttings, and their effect on the stand; slash disposal.

Mr. Miller.

**For. 412. Silviculture IV.**

0-3-0

Prerequisite: For. 411.

Required of seniors in Forestry.

The application of silvicultural methods in the forests of the United States.

Mr. Miller.

**For. 421. Logging.**

3-0-0

Prerequisite: For. 311.

Required of seniors in Forestry.

The logging industry and transportation methods; logging costs; application of methods to specific conditions; all forest regions are covered, discussing the problems of each.

Mr. Wyman.

**For. 422. Lumbering.**

0-3-0

Elective for seniors.

The manufacture and re-manufacture, transportation and handling of lumber; grades and grading of lumber.

Mr. Wyman.

**For. 423. Lumber Seasoning.**

0-0-2

Elective for seniors.

Air-seasoning and kiln-drying of lumber; kiln construction and operation; defects and their control.

Mr. Wyman.

**For. 431, 432. Forest Management.**

3-3-0

Prerequisite: For. 311.

Required of seniors in Forestry.

Management of timber lands for economic returns; the normal forest taken as the ideal; the application of regulation methods to the forest; a typical working circle as developed by the United States Forest Service studied for each forest region.

Mr. Hofmann.

For. 433. Advanced Wood Technology. 0-0-3  
Prerequisite: For. 202.

Elective for juniors and seniors in Forestry.

Advanced microscopic identification of the commercial woods of the United States; microscopic work in anatomy and identification. Mr. Slocum.

For. 442. Forest Finance. 3-0-0  
Required of juniors in Forestry.

Forests as investments: interest, carrying charges, financial maturity; relation of intermediate to final and net incomes; forest taxation, hazards in forest investments, and forest insurance. Mr. Chalfant.

For. 443. Timber Appraisal. 0-0-2  
Required of seniors in Forestry.

Field and office methods of valuing timber lands, with special reference to stumpage appraisal; the evaluation of damages to timber and forest property. Mr. Wyman.

For. 452. Seminar. 0-2-0  
Required of seniors in Forestry.

A round-table discussion of forestry problems; trends of development in forestry and related sciences. Mr. Chalfant.

For. 453. Senior Field Trip. 0-0-3  
Required of seniors in Forestry.

An extensive survey of logging, lumbering and utilization of forest production throughout the Southeast; a complete series of reports covering all plants and operations visited required. Mr. Wyman.

For. 461, 462, 463. Forestry Problems. 3-3-3  
Elective for seniors in Forestry.

Assigned or selected problems in the field of silviculture, logging, lumber manufacturing, or forest management. Staff.

#### Courses for Graduates Only

For. 501, 502, 503. Advanced Forest Management Problems. 3-3-3  
Complete management program for a specific forest area. Mr. Hofmann.

- For. 511, 512, 513. Advanced Silviculture Problems.** 3-3-3  
Advanced problems or experiments in silviculture. Mr. Miller.
- For. 521, 522, 523. Advanced Logging Problems.** 3-3-3  
Selected research logging problems of an advanced nature. Mr. Wyman.
- For. 531, 532, 533. Advanced Lumber Manufacturing.** 3-3-3  
Selected advanced problems dealing with the manufacture and seasoning of lumber. Mr. Wyman.
- For. 541, 542, 543. Advanced Utilization Problems.** 3-3-3  
Problems of an advanced grade in some phase of forest utilization. Mr. Wyman.
- For. 551, 552, 553. Forest Valuation.** 3-3-3  
Planning, organizing, and conducting, under general supervision, an important research project in one of the fields of valuation. Mr. Wyman.
- For. 561, 562, 563. Problems in Research.** 3-3-3  
Specific forestry problems that will furnish material for a thesis. Mr. Miller.

## GEOLOGY

### Courses for Undergraduates

- Geol. 101. Earth History.** 0-3-0  
Elective. Not to be taken after Geol. 120, 220, and 222.  
Introductory course in General Geology: changes in the earth, and underlying physical and life processes. Bradley: *The Earth and Its History*.  
Mr. Stuckey.
- Geol. 120. Physical Geology.** 4 or 4 or 4  
Required of freshmen in Basic Agriculture and Agricultural Education, and of sophomores in Forestry and Landscape Architecture.  
Dynamic processes acting on and within the earth; materials and make-up of the earth's crust. Lectures, laboratories, and field trips. Longwell, Knopf, and Flint: *Outlines of Physical Geology*, 2nd edition.  
Messrs. Stuckey, Edwards, Miller.

Geol. 207. Ex. Physical Geography. 3-3-0

A. The processes and forces involved in the development of land forms.

B. The physiographic provinces of the United States and their importance; physical geography of North Carolina. Mr. Stuckey.

Geol. 220. Engineering Geology. 3-0-0 or 0-0-3

Prerequisite: Chem. 101.

Required of sophomores in Agricultural, Ceramic, Civil, Geological, Highway, and Sanitary Engineering.

The principles of general geology and their application to engineering problems. Lectures, laboratories, and field trips. Ries and Watson: *Elements of Engineering Geology*, 2nd edition.

Messrs. Stuckey, Edwards, Miller.

Geol. 222. Historical Geology. 0-3-0

Prerequisite: Geol. 120 or 220.

Required of sophomores in Geological Engineering.

Major events in the history of North America; rise and development of main animal and plant groups. Lectures, laboratories and field trips. Schuchert: *Outlines of Historical Geology*. Mr. Edwards.

Geol. 223. Geomorphology. 0-0-3

Prerequisite: Geol. 120 or 220.

Required of sophomores in Geological Engineering.

A systematic study of land forms and their relations to processes and stages of development and adjustment of topography to structure. Lectures, map interpretations, and field trips. Lobeck, *Geomorphology*.

Mr. Edwards.

Geol. 230. Mineralogy. 3-0-0 or 0-0-3

Prerequisite: Chem. 103.

Required of sophomores in Ceramic and Geological Engineering, and of seniors in Chemical Engineering.

Crystallography, and physical and chemical mineralogy. Lectures and laboratory work. Kraus and Hunt: *Mineralogy*.

Messrs. Stuckey, Edwards, Miller.



**Geol. 325. Geology and Mineral Resources of North Carolina.** 3-0-0

Prerequisite: Geol. 222.

Physical geography, general geology, common rocks and minerals, and mines and quarry products of the State. Lectures, laboratories, and field trips.

Mr. Stuckey.

**Geol. 332. Advanced Mineralogy.** 0-3-0

Prerequisite: Geol. 230. Required in Geological Engineering.

A continuation of Geol. 230. Special attention to chemical and blowpipe properties of a larger group of important minerals. Lectures and laboratory work.

Mr. Stuckey.

**Geol. 338. Thermal Mineralogy.** 0-3-0

Prerequisites: Geol. 230 and Chem. 331.

Required of juniors in Cer. E.

A study of the behavior of ceramic materials as controlled by variations in composition, temperature, and pressure.

Mr. Stuckey.

**Geol. 352. Structural Geology.** 0-4-0

Prerequisite: Geol. 120 or 220.

Required in Geological Engineering.

The arrangement and deformation of the different rock masses composing the earth's crust. Lectures, laboratories and field trips. Nevin: *Principles of Structural Geology*.

Mr. Edwards.

**Geol. 353. Geophysics.** 0-0-4

Prerequisites: Geol. 352, Phys. 203, C. E. 226.

Required of juniors in Geological Engineering.

Discussion of the fundamental principles underlying all geophysical methods; procedure and instruments involved in gravitational, magnetic seismic and electrical methods; study of applications and interpretation of results.

Mr. Miller.

**Geol. 361. Stratigraphy and Index Fossils.** 3-0-0

Prerequisite: Geol. 222.

Required of juniors in Geological Engineering.

Distribution and conditions of origin of principal geologic formations in Southeastern United States; key fossils characteristic of each period.

Mr. Edwards.

## Courses for Graduates and Advanced Undergraduates

- Geol. 411, 412, 413. Economic Geology.** 3-3-3  
 Prerequisites: Geol. 120 or 220; Geol. 230; Chemistry 103.  
 Required of seniors in Geological Engineering.  
 Mode of occurrence, association, origin, distribution, and uses of economically valuable minerals. Lectures, laboratories, and field trips. Ries: *Economic Geology*, 7th Edition. Mr. Stuckey.
- Geol. 431, 432, 433. Optical Mineralogy.** 3-3-3  
 Prerequisites: Geol. 230, and Phys. 203.  
 Required of seniors in Ceramic and Geological Engineering.  
 Theory of light as applied to the polarizing microscope; practice in determining minerals in thin sections and by immersion methods. Lectures and laboratory work. Rogers and Kerr: *Thin-Section Mineralogy*, 2nd Edition. Mr. Stuckey.
- Geol. 443. Petrology.** 0-0-4  
 Prerequisites: Geol. 120 or 220; Geol. 230; and Chemistry 103.  
 Required of juniors in Geological Engineering.  
 Materials of the earth's crust; composition, texture, classification, identification, and alterations of the principal igneous, sedimentary, and metamorphic rocks. Lectures, laboratories, and field trip. Grout: *Kemp's Handbook of Rocks*. Mr. Edward.
- Geol. 462. Advanced Engineering Geology.** 0-3-0  
 Prerequisite: Geol. 220.  
 Required of seniors in Geological Engineering.  
 The application of geologic principles to civil engineering practice; analysis of geologic factors and processes affecting specific engineering projects. Legget: *Geology and Engineering*. Mr. Edwards.
- Geol. 463. Geological Surveying.** 0-0-4  
 Prerequisites: Geol. 352 and 443.  
 Required of seniors in Geological Engineering.  
 Methods of field observation and the use of geologic surveying instruments; construction of a complete geologic map of a specific area. Lectures, laboratories, and field trips. Mr. Edwards.

**Geol. 471, 472, 473. Mining Engineering, Mine Design, Ore Dressing.** 3-3-3

Prerequisites: Geol. 230 and 352; C. E. 222 and 225.

Required of seniors in Geological Engineering.

Mining methods, both open pit and underground; mine examination and valuation; principles of ore dressing; problems in mine design. Young: *Elements of Mining*. Mr. Miller.

### Courses for Graduates Only

**Geol. 511, 512. Advanced Economic Geology.** 3-3-0

Prerequisites: Geol. 411, 412, 413.

Detailed study of the origin and occurrence of specific mineral deposits.

Mr. Stuckey.

**Geol. 543. Advanced Petrography.** 0-0-3

Prerequisites: Geol. 433, 443.

Application of the petrographic microscope to the systematic and descriptive study of rocks. Mr. Stuckey.

**Geol. 591, 592, 593. Geological Research.** 3-3-3

Prerequisite: Permission of the Instructor.

Lectures, reading assignments, and reports; special work in Geology to meet the needs and interests of the students.

Messrs. Stuckey, Edwards, Miller.

## HISTORY AND POLITICAL SCIENCE

### Courses in History

**Hist. 101, 102, 103. Economic History.** 3-3-3

An examination of the important changes in European society and the forces which produced these changes during the periods of expansion and industrialization, as a background for a general treatment of the agricultural, industrial, and commercial development of the United States.

Messrs. Barnhardt, Bauerlein, Patton, Seegers.

**Hist. 104, 105, 106. World History. 2-2-2**

Required of freshmen or sophomores who do not take Military Science.

A general survey of Western civilization from its beginning to the present day. Mr. Barnhardt.

**Hist. 200, 201, 202. History of the United States. 3-3-3**

Elective for one, two, or three terms.

A chronological treatment of the political, diplomatic, and constitutional history of the United States in the light of its economic and social significance. Mr. Bauerlein.

**Hist. Ex. 203. Medieval History. 3 credits**

A survey of the political, social, economic, ecclesiastical, and cultural history of Europe from the fourth century to the close of the fifteenth century. Mr. Barnhardt.

**Hist. 204. History of Modern Europe. 0-0-3**

Elective.

A survey of the economic, political, and social developments in Europe from the age of the great discoveries to the close of the eighteenth century. (Offered 1944-45.) Mr. Barnhardt.

**Hist. 205. History of Modern Europe. 0-0-3**

Elective.

A survey of European history during the nineteenth century, political, economic, and social movements being emphasized in proportion to their international or European importance. (Offered 1945-46.)

Mr. Barnhardt.

**Hist. 206. Contemporary Europe. 0-0-3**

Elective.

A survey of the contemporary history of the principal European states and their international relations in the twentieth century. (Offered 1943-1944.) Mr. Barnhardt.

**Hist. 303. North Carolina History. 0-3-0**

Elective.

A general survey of the political, social, economic, and cultural developments in North Carolina, with special emphasis on the nineteenth and twentieth centuries. Mr. Barnhardt.

**Hist. Ex. 307, 308, 309. Economic and Social History of the South. 9 credits**

A study of the economic and social history of the Southern States.  
Lectures, readings, and reports. Mr. Patton.

**Hist. Ex. 310. American Biography. 3 credits**

Representative men and women in American politics, law, religion, agriculture, industry, commerce, science, literature, and art. Mr. Barnhardt.

**Hist. 319. History of American Agriculture. 0-0-3**

Required of juniors in Rural Sociology; elective for others.

Main trends in agriculture in the United States, and the place of agriculture in the economic life of the nation; special emphasis on the period since the Civil War. Mr. Seegers.

**Hist. Ex. 320. History of Modern England. 3 credits**

Survey of English political, social, economic, and diplomatic history, with emphasis on the nineteenth and twentieth centuries. Mr. Barnhardt.

**Hist. Ex. 321. Hispanic American History. 3 credits**

A brief account of the colonial period and wars for independence, followed by more or less detailed study of the various Hispanic American republics, with emphasis upon their relations with the United States. Mr. Patton.

**Hist. Ex. 322. Contemporary History of the United States. 3 credits**

Significant developments in the United States since 1914, with particular emphasis on post-war problems, foreign affairs, and the New Deal. Mr. Patton.

### Courses in Political Science

**Pol. Sc. 200. American Government. 3 or 3 or 3**

Meets School of Engineering Citizenship Requirement; required of juniors in Rural Sociology and Occupational Information and Guidance; elective for others.

A survey of the origins, structure, and functions of government in the United States, including foreign relations, constitutional decisions, and the New Deal. Mr. Patton.

**Pol. Sc. 201. State Government and Administration. 0-0-3**

Required of juniors in Rural Sociology and Occupational Information and Guidance; elective for others.

A study of Federal-State relations, and the organization and administration of state and county governments. Special attention will be given to problems of government in North Carolina. Mr. Patton.

**Pol. Sc. 202. Municipal Government and Administration. 0-0-3**

Required of juniors in Rural Sociology and Occupational Information and Guidance; elective for others.

A study of the history, organization, and administration of American municipal corporations. Lectures, readings, and reports. Mr. Patton.

**Pol. Sc. 203. American Political Parties. 3-0-0**

Elective.

The origin and development of political parties in the United States: their functions, organization, regulation, campaign methods, and elections. (Not offered in 1943-44.)

**Pol. Sc. 206. European Governments. 3-0-0**

Elective.

A study of the governments of England, France, Germany, Italy, and Russia. Mr. Barnhardt.

## HORTICULTURE

### Courses for Undergraduates

**Hort. 203. General Horticulture. 0-0-3**

Required of sophomores in Agriculture.

A course designed to give a general insight into the field of horticulture, including geographic centers of production, and the elements of the culture of fruit, vegetable, and flower crops. Messrs. Gardner, Randall, Weaver.

**Hort. 301. Plant Propagation and Nursery Practice. 3 or 3 or 3**

Required of students majoring in Horticulture; elective for other juniors and seniors in Agriculture and Forestry.

Study of methods and practice in seedage, cuttage, division, budding, and grafting; cultural principles and practices in growing nursery stock.

Messrs. Randall, Weaver.

**Hort. 302. Vegetable Forcing.** 0-3-0

Prerequisite: Hort. 203.

Required of students majoring in vegetable growing; elective for other juniors and seniors in Agriculture.

Production and management of vegetable crops under glass; practice in growing vegetables under protection. Mr. Randall.

**Hort. 303. Vegetable Gardening.** 0-0-4

Prerequisite: Hort. 203.

Required of students majoring in vegetable growing and fruit growing; elective for other juniors and seniors in Agriculture.

Location, soil preparation, fertilization, irrigation, and general culture applicable to vegetable production. Messrs. Randall, Weaver.

**Hort. 311. Small Fruits and Grapes.** 3-0-0

Prerequisite: Hort. 203.

Required of students majoring in fruit growing and vegetable growing; elective for other juniors and seniors in Agriculture.

A course in the culture and production of small fruits, including strawberries, dewberries, blackberries, blueberries, raspberries, and grapes.

Messrs. Gardner, Weaver.

**Hort. 312. Floral Design.** 0-1-0

Required of students majoring in floriculture; elective for other juniors and seniors in Agriculture.

Principles and practices in the art of floral design; corsages, wreaths, sprays, baskets, and special arrangements. Mr. Weaver.

**Hort. 313. Home Floriculture.** 0-0-3

Required of students majoring in vegetable growing; elective for other juniors and seniors in Agriculture.

Principles and methods of growing garden flowers and house plants, including varieties and their adaptability.

**Hort. 321. Fruit and Vegetable Judging.** 2-0-0

Prerequisite: Hort. 203.

Elective for juniors and seniors in Agriculture.

Practice in variety identification, and in judging plates, collections, boxes, and commercial exhibits of fruits and vegetables. Messrs. Gardner, Randall.

**Hort. 323. Ornamental Horticulture.** 0-0-2

Prerequisites: Hort. 301 and L. A. 402.

Elective for juniors and seniors in the School of Agriculture.

The planting, transplanting, pruning, feeding, and protection of ornamental plants used in the construction and maintenance of rural home grounds. Lawn grasses and lawn-making. Mr. Harris.

**Hort. 331. Fruit Growing.** 4-0-0

Prerequisite: Hort. 203.

Required of students majoring in fruit growing, vegetable growing, poultry, and animal husbandry; elective for other juniors and seniors in Agriculture.

A study of factors underlying fruit production; temperature and moisture relations; culture, fertilization, pruning, fruit setting, yield, and storage.

Messrs. Gardner, Schmidt, Weaver.

**Hort. 341. Commercial Floriculture.** 4-0-0

Prerequisites: Hort. 203, 301.

Required of students majoring in floriculture; elective for other juniors and seniors in Agriculture.

A study of the commercial production of the principal floral crops under protection and in the open, including actual planting and care of the crops.

Mr. Randall.

**Hort. 351. Fruit and Vegetable Utilization.** 3-0-0

Elective for juniors and seniors in Agriculture.

Principles and methods involved in the commercial utilization of surplus and off-grade products; extraction and preservation of juices; quick-freezing methods; sweet-potato starch production; dehydration; other manufactured products and by-products. Staff.

**Courses for Graduates and Advanced Undergraduates**

**Hort. 401. Systematic Pomology (offered in alternate years).** 2-0-0

Prerequisite: Hort. 331.

Required of students majoring in pomology.

Fruit varieties: their description, identification, nomenclature, and classification; their relationships and adaptations; judging methods and standards. Mr. Gardner.



**Hort. 411. Systematic Olericulture (offered in alternate years). 2-0-0**

Prerequisite: Hort. 303.

Required of students majoring in vegetable growing.

Vegetable varieties: their description, identification, nomenclature, and classification; their relationships and adaptations. Mr. Randall.

**Hort. 412. Experimental Horticulture. 0-3-0**

Prerequisites: Hort. 331, 303, 341.

A systematic study of the sources of knowledge and results of experiments in fruit growing, vegetable growing, and floriculture.

Messrs. Gardner, Randall, Weaver.

**Hort. 421, 422, 423. Horticultural Problems. 2-2-2**

Prerequisite: twelve credit hours in Horticulture.

Required of all students majoring in Horticulture.

Systematic investigation of some phase of horticulture, each student choosing his own subject of study and pursuing it under direction of the instructor.

Messrs. Gardner, Randall, Weaver.

**Hort. 431, 432, 433. Senior Seminar. 1-1-1**

Prerequisite: twelve credit hours in Horticulture.

Required of all students majoring in Horticulture.

A discussion of problems of interest to horticulturists. Discussion topics are assigned to students and members of the Horticultural staff.

Staff.

### Courses for Graduates Only

**Hort. 501, 502, 503. Methods of Horticultural Research. 3-3-3**

Prerequisite: eighteen credit hours in Horticulture.

A study of methods and procedure, outlining problems, assembling and analyzing data, and presenting results; critical review of experiment-station work.

Staff.

**Hort. 511, 512, 513. Seminar. 1-1-1**

Prerequisite: eighteen credit hours in Horticulture.

Required of graduate students only.

Assignment of scientific articles of interest to horticulturists for review and discussion; student papers and research problems for discussion.

Staff.

Hort. 521, 522, 523. Research. 3-5, 3-5, 3-5

Prerequisite: eighteen credit hours in Horticulture.

Graduate students will be required to select problems for original research in fruit growing, vegetable growing, or floriculture. The work and presentation of results should be of such merit as to be worthy of publication.

Staff.

## INDUSTRIAL ENGINEERING

### Courses for Undergraduates

I. E. 101, 102, 103. Industrial Organization. 3-3-3

Required of sophomores in I. E.

Engineering methods in studies of industrial enterprises. Mr. ....

I. E. 201, 202, 203. Management Engineering. 3-3-3

Prerequisite: I. E. 103.

Required of juniors in I. E.

Principles of management, administration, production, and sales; executive control, industrial relations, incentives, normal capacities, standard costs, and pricing; budgeting and planning. Gilman: *Analyzing Financial Statements*. Mr. Shaw.

### Courses for Advanced Undergraduates

I. E. 301. Engineering Economics. 3 or 3 or 3

Prerequisite: Econ. 202 or 205.

Required of seniors in E. E., I. E., and in M. E., Furniture Option, elective for others.

Principles of investments, costs, and utility, with applications to engineering practice; choice of investments and replacements. Grant: *Principles of Engineering Economy, and Problems*. Mr. Shaw.

I. E. 312, 313. Industrial Engineering Problems. 0-3-3

Prerequisites or concurrent: I. E. 201, 202, 203.

Required of seniors in I. E.

Detailed study of problems of moment in this rapidly developing field.

Mr. Shaw.

**I. E. 322. Motion and Time Study. 0-3-0**

Required of juniors in I. E., elective for others.

Prerequisite: I. E. 201 or junior standing.

Fundamentals of methods, involving motion and time, to reduce costs by finding "the one best way." Laboratory: Methods analysis, process and other charts, micromotion and timer techniques. Barnes: *Motion and Time Study*. Mr. Shaw.

### Courses for Graduates and Advanced Undergraduates

**I. E. 402. The Electrical Industry. 0-3-0**

Prerequisite: I. E. 301.

Required of seniors in E. E. and I. E.

The operation, practices, management, and performance of electric light and power companies and other electrical industries. Factors, indexes, and comparisons; services and prices; cost analyses and predeterminations.

Mr. Shaw.

**I. E. 421, 422, 423. Public Utilities. 3-3-3**

Prerequisite or concurrent: I. E. 301 or senior standing.

Elective for seniors or graduate students.

Public utilities and their regulation; services, rates, rate bases, returns, leading cases; current problems. Thompson and Smith: *Public Utility Economics*. Mr. Shaw.

**I. E. 433. Investigation and Report. 0-0-3**

Prerequisite: I. E. 312.

Required of seniors in I. E.

Investigation of a selected and approved problem.

Mr. Shaw.

### Courses for Graduates Only

**I. E. 501, 502, 503. Industrial Engineering Research. 3-3-3**

Prerequisite: Graduation in Engineering.

Investigation of a problem of major importance in the field of Industrial Engineering. Mr. Shaw.

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\* Not offered in 1943-44.

## LANDSCAPE ARCHITECTURE

### Courses for Undergraduates

L. A. 101, 102, 103. Arboriculture. 1-1-1

Required of freshmen in Landscape Architecture; elective for other students in Agriculture.

Culture of plant materials: their planting, transplanting, training, fertilization, protection from pests; tree surgery, lawn making.

Messrs. Pillsbury, Weaver.

### Courses for Advanced Undergraduates

L. A. 201, 202, 203. Plant Materials: Woody Plants. 2-2-2

Prerequisite: Bot. 203.

Required of sophomores in Landscape Architecture and juniors in Floriculture; elective for students in other curricula.

Trees, shrubs, and vines: their distribution, form and habits of growth, size, texture, color, and other characteristics determining use in planting design.

Mr. Randall.

L. A. 212, 213. Theory of Landscape Design. 0-3-3

Required of sophomores in Landscape Architecture; elective for students in other curricula.

Introduction to the study of landscape design; its theoretical basis; the meaning of taste; historic styles; elements, and landscape composition; planting design, and analyses of typical problems in landscape design.

Mr. Pillsbury.

L. A. 303. Plant Materials: Herbaceous Plants. 0-0-2

Required of juniors in Landscape Architecture; elective for students in other curricula. Prerequisite: Bot. 203.

Ornamental perennial and annual plants: height, habit of growth, texture, color, and other characteristics determining use in planting design.

Mr. Randall.

L. A. 311, 312. History of Landscape Design. 3-3-0

Prerequisites: L. A. 212, 213.

Required of juniors in Landscape Architecture.

History of the art of landscape design from antiquity to modern times; sketching from illustrations of design in important periods. Mr. Pillsbury.

- L. A. 321, 322, 323. Landscape Design I.** 4-4-4  
 Prerequisites: L. A. 311, 312.  
 Required of juniors in Landscape Architecture.  
 Problems in presentation, and in constructive design of small properties, gardens, and other special areas and suburban estates. Mr. Pillsbury.
- L. A. 402. Ornamental Plants.** 0-2-0  
 Prerequisite: Bot. 203.  
 Required of seniors in Vegetable Gardening and Pomology; elective for juniors or seniors in other curricula.  
 Ornamental trees, shrubs, and vines: their characteristics used in the design of planting for home, school, church, and community-center grounds, and farmstead landscapes. Mr. Randall.
- L. A. 403. Landscape Gardening.** 0-0-3  
 Prerequisites: L. A. 402, or 201, 202, 203.  
 Required of seniors in Vegetable Gardening, Floriculture, and Pomology; elective for seniors in all other curricula.  
 Landscape planning and planting design applied to the improvement of home, school, church, community-center grounds, and farmsteads; practice in methods of making measured surveys, mapping, and designing improvements and planting. Mr. Pillsbury.
- L. A. 411, 412, 413. Planting Design.** 3-3-3  
 Prerequisites: L. A. 201, 202, 203, and 303.  
 Required of seniors in Landscape Architecture.  
 Problems in composition with plant materials, presentation details, the preparation of planting plans, and cost data. Mr. Pillsbury.
- L. A. 421, 422, 423. Landscape Design II.** 4-4-4  
 Prerequisites: L. A. 321, 322, 323.  
 Required of seniors in Landscape Architecture.  
 Problems in presentation, and in the design of small parks and other public grounds, and institutional groups. Mr. Pillsbury.
- L. A. 432. City Planning.** 0-3-0  
 Required of seniors in Landscape Architecture; elective for seniors in all schools.  
 Origins and types of urban communities; modern city and town planning; legal, economic, social, and aesthetic phases and their interrelationships; fundamental data required; methods of planning and financing; zoning; city and regional planning legislation. Mr. Pillsbury.

**L. A. 442. Suburban Design.**

0-4-0

Prerequisite: L. A. 321, 322, 323, and 432.

The subdivision of land as related to suburban development and urban growth.  
Mr. Pillsbury.

**L. A. 451, 452, 453. Landscape Construction.**

2-2-2

Required of seniors in Landscape Architecture. Prerequisite: C. E. 224, 225, 226, and 227; and L. A. 321, 322, 323.

Problems in design of ground surface, walks, and drives; preparation of plans for grading and drainage; estimates of materials and costs, and methods of execution of landscape designs.  
Mr. Pillsbury.

**L. A. 463. Office Practice.**

0-0-1

Prerequisite: L. A. 451, 452, 453.

Arrangement of equipment, supplies, data, and illustrative and other material in landscape offices; methods of professional procedure, and professional ethics.  
Mr. Pillsbury.

**MATHEMATICS****Courses for Undergraduates****\*Math. 111. Algebra.**

4-0-0

Review of elementary topics, such as Factoring, Fractions, Simple Equations, Exponents, and Radicals. Topics then taken up are Quadratic Equations, Solution of Higher-Degree Equations, Simultaneous Quadratic Equations, Logarithms, the Binomial Theorem, Arithmetic and Geometric Progressions, Permutations, Combination, and the Elementary Theory of Probability. Fisher: *College Algebra*.

**\*Math. 112. Trigonometry.**

0-4-0

Prerequisite: Math. 111.

The study of the Trigonometric Functions with their applications to the solution of the right and oblique triangles, with numerous problems. Also a brief study of Trigonometric Equations, and Identities and Inverse Functions. Practical Mensurations of Solids is taken up. Clarkson and Bullock: *Trigonometry*.

**\*Math. 113. Mathematics of Finance.**

0-0-4

Prerequisite: Math. 112.

Simple and compound interest, annuities, sinking funds and amortization, and the valuation of bonds and other applications. Smail: *Mathematics of Finance*.  
Staff.

\* This course will be repeated the following term.

**\*Math. 101. Algebra for Engineers.** 6-0-0

Required of freshmen in the School of Engineering, and in the Departments of Industrial Management, Industrial Arts, and Landscape Architecture.

Quadratic equations, the progressions, the binomial theorem, permutations and combinations, logarithms, the general theory of equations, the solution of higher equations, determinants and partial fractions. Fisher: *College Algebra*. Staff.

**\*Math. 102. Trigonometry for Engineers.** 0-6-0

Prerequisite: Math. 101.

Required of freshmen in the School of Engineering, and in the Departments of Industrial Management, Industrial Arts, and Landscape Architecture.

The trigonometric functions, derivation of formulae, the solution of plane and spherical triangles, with practical applications, slide rule, complex numbers, and hyperbolic functions. Clarkson and Bullock: *Plane and Spherical Trigonometry*. Staff.

**\*Math. 103. Analytical Geometry.** 0-0-6

Prerequisites: Math. 101, 102.

Required of freshmen in the School of Engineering, and in the Departments of Industrial Management, Industrial Arts, and Landscape Architecture.

Loci of equations, the straight line, circle, parabola, ellipse, hyperbola, the general equation of the second degree, polar coördinates, transcendental curves, parametric equations, coördinates in space, planes and surfaces. Smith, Gale and Neelley: *Elements of Analytical Geometry*. Staff.

**\*Math. 201. Calculus I.** 4-0-0

Prerequisite: Math. 103.

Required of sophomores in Engineering.

A course in the fundamental principles of the calculus, including the formulas for differentiation, and for integration of polynomial functions, with applications to geometry and to problems in rates, maxima and minima, curve tracing, curvature, areas, volumes, work, pressure, velocity and acceleration. Smith, Salkover, Justice: *Calculus*. Staff.

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\* This course will be repeated the following term.

**\*Math. 202. Calculus II.**

0-4-0

Prerequisite: Math. 201.

Required of sophomores in Engineering.

A continuation of Calculus I. Methods of integration, and the study of the definite integral, with applications to problems in areas, volumes, lengths of arcs, surfaces, centroids, moments of inertia, radii of gyration, approximate integration. Smith, Salkover, Justice: *Calculus*. Staff.

**\*Math. 303. Calculus III.**

0-0-4

Prerequisite: Math. 202.

Required of sophomores in Engineering.

A continuation of Calculus II. Indeterminate forms, infinite series, expansion of functions, hyperbolic functions, partial differentiation, double and triple integrals, and differential equations. Smith, Salkover, Justice: *Calculus*. Staff.

### Courses for Graduates and Advanced Undergraduates

**Math. 431-a. Differential Equations.**

3-0-0

Prerequisite: Math. 303.

Required of juniors in Electrical Engineering and elective for others.

Solution of standard types of equations; numerous examples in the field of Electrical Engineering. Kells: *Differential Equations*. Mr. Bullock.

**Math. 431-b. Differential Equations.**

3-0-0

Prerequisite: Math. 303.

Elective. Principally for students in Chemical Engineering.

A study of the equations that occur in Applied Chemistry. Much emphasis on graphic methods and numerical work. Phillips: *Differential Equations*. Mr. Winton.

**Math. 432. Advanced Differential Equations for Electrical Engineers.** 0-3-0

Prerequisite: Math. 431-a.

Elective.

A continuation of the work given in Math. 431-a. Series solutions, approximate methods, partial differential equations, hyperbolic functions, and other topics will be studied with special emphasis on applications to problems in Electrical Engineering. Students not taking Electrical Engineering may register for the course and will be assigned individual problems in their particular field. Lecture notes. Mr. Bullock.

\* This course will be repeated the following term.



**Math. 402. Graphical and Numerical Methods.**

0-3-0

Prerequisite: Math. 303.

Elective.

Graphical and numerical approximate methods in differentiation, integration and the solution of both ordinary and differential equations. Theory of least squares and empirical curve fitting. Numerous examples in the fields of physics, electricity, mechanics, and engineering will be solved. Mackey: *Graphical Solutions*.

Mr. Cell.

**Math. 403. Vector Analysis I.**

0-0-3

Prerequisite: Math. 431 (a or b).

Elective.

Different vector products; the calculus of vectors with applications to geometry and mechanics. Phillips: *Vector Analysis*.

Mr. Clarkson.

**\*\*Math. 411. Advanced Calculus for Engineers.**

3-0-0

Prerequisite: Math. 431 (a or b).

Elective.

Hyperbolic functions, elliptic integrals and functions, partial differentiation of composite functions, differentiation of integrals, implicit functions. Applications to problems in engineering will be emphasized. Reddick and Miller: *Advanced Mathematics for Engineers*.

Mr. Mumford.

**\*\*Math. 412. Advanced Calculus for Engineers.**

0-3-0

Prerequisite: Math. 431 (a or b).

Elective.

Power series, Gamma and Bessel functions, functions of a complex variable, line integrals. Applications to problems in engineering will be emphasized. Reddick and Miller: *Advanced Mathematics for Engineers*.

Mr. Mumford.

**\*\*Math. 413. Series for Engineers.**

0-0-3

Prerequisite: Math. 431 (a or b).

Elective.

Fourier series, partial differential equations, with applications to problems in physics and engineering. Reddick and Miller: *Advanced Mathematics for Engineers*.

Mr. Mumford.

\*\* Math. 411, 412, 413, may be taken in any order.

**Math. 421. Advanced Analytic Geometry.** 3-0-0

Prerequisite: Math. 303.

Elective.

The elements of higher plane curves and the geometry of space. Snyder and Sisam: *Analytic Geometry*. Mr. Bullock.

**Math. 422. Theory of Equations.** 0-3-0

Prerequisite: Math. 303.

Elective.

The usual topics in the theory of equations, the solution of higher equations, exponential equations, logarithmic equations, and determinants. Dickson: *First Course in Theory of Equations*. Mr. Mumford.

**Courses for Graduates Only****Math. 501. Applied Mathematics I.** 3-0-0

Elective for graduate students only. Prerequisite: Math. 413 or the consent of the instructor.

The course will be arranged to fit the engineering interests of the students enrolled.

Catenary cables, straight-and-curved-beam problems, theory of curve fitting, probability and applications, problems in the theory of elasticity, ballistics, vibration theory and problems, electrical circuits, Heaviside operational calculus and applications to electrical engineering and to other engineering problems, calculus of finite differences and applications. Lecture notes. Mr. Cell.

**Math. 502. Applied Mathematics II.** 0-3-0

Prerequisite: Math. 501.

Elective. For graduate students only.

A continuation of Math. 501. Lecture notes. Mr. Cell.

**Math. 503. Applied Mathematics III.** 0-0-3

Prerequisite: Math. 502.

Elective. For graduate students only.

A continuation of Math. 502. Lecture notes. Mr. Cell.

## MECHANICAL ENGINEERING

## Courses for Undergraduates

- M. E. 101, 102, 103. Engineering Drawing I.** 2-2-2  
 Required of freshmen in Textiles.  
 Drawing-board work on lettering, projections, sections, pictorial drawings, with working drawings related to textile machinery; tracing and blue-printing. French and Svensen: *Mechanical Drawing*. Leonard: *Lettering Exercises for Engineers and Draftsmen*.  
 Messrs. Briggs, Brown, Adams, Hyde, Bragg, Leonard, Redmon, Stinson.
- M. E. 105, 106. Engineering Drawing II.** 3-3-0  
 Required of freshmen in Engineering, Agricultural Engineering, and Landscape Architecture.  
 Drawing-board work on lettering, projections, sections, revolution, auxiliary views, pictorial drawings, intersection, development, working drawings; tracing and blueprinting. French: *Engineering Drawing*. Leonard: *Lettering Exercises for Engineers and Draftsmen*.  
 Messrs. Briggs, Brown, Bragg, Hyde, Leonard, Stinson, Adams, and Redmon.
- M. E. 107. Descriptive Geometry.** 0-0-3  
 Prerequisite: M. E. 105, 106.  
 Required of freshmen in Engineering, Agricultural Engineering, and Landscape Architecture.  
 Representation of geometrical magnitudes with points, lines, planes, and solids; the solutions of problems. Warner: *Applied Descriptive Geometry*.  
 Messrs. Briggs, Brown, Adams, Bragg, Leonard, Stinson, Hyde, and Redmon.
- M. E. 121. Woodwork.** 1 or 1 or 1  
 Required of sophomores in A. E., and freshmen in Textiles.  
 Use of bench tools, making cabinet joints, operation and care of wood-working machinery; correct methods of staining, varnishing, filling, and gluing various kinds of wood.  
 Mr. Rowland.
- M. E. 122. Foundry.** 1 or 1 or 1  
 Required of sophomores in A. E. and Ch. E., and freshmen in Textiles.  
 Demonstration and practice in molding and core making; cupola practice. Stimpson, Grey and Grennan: *Foundry Work*.  
 Mr. Maddison.

**M. E. 123. Forge Work.**

1 or 1 or 1

Required of sophomores in A. E. and Ch. E., and freshmen in Textiles.

Hand forging of simple exercises, in mild steel, representative of industrial practice; the origin, purification and fabrication of ferrous metals; the identification and uses of these metals. Coleman: *Forge Note Book*.

Mr. Cope.

**M. E. 124. Pattern Making.**

2 or 2 or 2

Required of sophomores in M. E. and I. E.

Elementary joinery, finishing, theory of dry-kilning, wood-turning; lectures, demonstrations, and practice in hand work and machine methods; typical patterns and core boxes constructed, such as solid, split, and loose piece. Turner and Town: *Pattern Making*.

Mr. Rowland.

**M. E. 125. Foundry Practice.**

2 or 2 or 2

Required of sophomores in I. E., and M. E.

Lectures, demonstrations, and practice in molding and core making, cupola operations; melting and casting of ferrous and nonferrous metals and their alloys; instructions and practice in the testing of molding sands. Wendt: *Foundry Work*.

Mr. Maddison.

**M. E. 126. Forging and Welding.**

2 or 2 or 2

Required of sophomores in I. E., and M. E.

A study of the principles and practices of forging: hand forging as correlated with the industrial processes of hammering, rolling, and pressing. Lectures, demonstrations, and practice in forge, oxy-acetylene, and electric welding. Johnson: *Forging Practice*.

Mr. Cope.

**M. E. 128. Forge and Welding Practice.**

3 or 0 or 3

Required of sophomores in E. E.

Hand forging of exercises in mild and tool steel correlated with the industrial methods of hammering, rolling and pressing; principles and modern practices; identification of ferrous metals; practice in forge, oxy-acetylene and electric welding. Campbell: *The Working, Heat Treating and Welding of Steel*.

Mr. Cope.

**M. E. 211, 212, 213. Mechanical Drawing.** 2-2-2 or 0-2-2

Prerequisites: M. E. 105, 106, 107.

Required of sophomores in M. E., A. E., and juniors in Cer. E., and Ind. Ed.

Drawing-board work on machine fastenings, pipe fittings, cam design; technical sketching, applied descriptive geometry, and working drawings; tracing and blueprinting. French: *Engineering Drawing*.

Mr. Satterfield.

**M. E. 215, 216, 217. Elementary Mechanism.** 1-1-1

Prerequisites: M. E. 105, 106, 107.

Required of juniors in E. E. and A. E.

The study of linkages, cams, gears, belting, gear trains, and other simple mechanisms; design and drawings of simple machine parts. Keown and Faïres: *Mechanism*.  
Messrs. Briggs, Adams, and Brown.

**M. E. 224. Factory Equipment.** 0-0-3

Prerequisites: M. E. 124, 125, 126.

Required of juniors in I. E.

To summarize and coördinate all previous shop courses and show their relation to manufacturing processes; the essential principles of machine-tool operation; machine-tool selection and application for economic production. Roe and Lytle: *Factory Equipment*.  
Mr. Wheeler.

**M. E. 225, 226. Machine Shop I.** 1-1-0

Prerequisites: M. E. 121, 122, 123.

Required of juniors in Chem. Eng.

Practice in chipping, filing, scraping, and babbiting: general machine work, including straight and taper turning, drilling, shaper work, and gear cutting.  
Mr. Wheeler.

**M. E. 227, 228, 229. Machine Shop II.** 1-1-1

Prerequisites: M. E. 121, 122, 123, or M. E. 124, 125, 126.

Required of juniors in I. E. and M. E., and Yarn manufacturing.

Practice in laying out work, grinding tools, chipping, drilling, tapping, babbiting bearings, and scraping; machine work, including centering, straight and taper turning, chucking, screw cutting, shaper work, planer work, index milling and gear cutting. Turner: *Machine Tool Work*.  
Mr. Wheeler.

**M. E. 235, 236. Metal Shop.**

3-3-0

Prerequisite: Ed. 106.

Required in Industrial Arts.

Use of hand and machine tools in problems for secondary schools. Kaup:  
*Machine Shop Practice.* Mr. Wheeler.

**M. E. 241, 242, 243. Oxy-Acetylene and Electric Welding.**

1-1-1

Prerequisite: M. E. 123 or equivalent.

Elective.

Fundamental methods and principles of fusion welding: welding symbols, economic and metallurgical considerations, selection of method and type of welding. *Welding Handbook* of the American Welding Society.

Mr. Cope.

**M. E. 307, 308, 309. Engineering Thermodynamics I.**

3-3-3

Prerequisites: Phys. 201, 202, 203, Math. 303.

Required of juniors in E. E., M. E., I. E., A. E., C. E., Cer. E., and Geol. Eng.

The study of heat as an engineering medium; combustion, heat transfer, and the laws governing energy transformations; use of the general energy equation dealing with gases, vapors, and mixtures; application of fundamental principles to design and performance of nozzles, steam engines and turbines, internal-combustion engines, refrigerating machines, and air compressors. Faïres: *Applied Thermodynamics.* Messrs. Hoefer and Rice.

**M. E. 313, 314, 315. Mechanical Engineering Laboratory I.**

1-1-1

Concurrent with M. E. 307, 308, 309.

Required of juniors in E. E., I. E., Cer. E., and M. E.

Calibrating pressure, temperature, speed, and power-measuring instruments; the testing of fuels, lubricants, pumps, compressors, steam engines and turbines, heating and ventilating equipment, hydraulic machinery, and internal-combustion engines. Rice: *Experimental Engineering.*

Messrs. Bridges, Van Note, and Perry.

**M. E. 317, 318, 319. Kinematics.**

3-3-3

Prerequisites: M. E. 211, 212, 213.

Required of juniors in M. E.

A study of the science of the motion of machine parts, with emphasis on belts, pulleys, cams, gears, chain drives, shafts, and links. Sloane: *Engineering Kinematics.* Mr. Brown.

**M. E. 322, 323. Metallurgy.**

0-3-3

Prerequisites: Chem. 101, 102, 103.

Required of juniors in M. E. and A. E.

The constitution, structure and properties of engineering ferrous and non-ferrous metals and alloys; influences of mechanical working and heat treatment; physical testing; corrosion and its prevention. Sisco: *Modern Metallurgy for Engineers*.  
Mr. Van Note.

**M. E. 341, 342, 343. Furniture Design.**

3-3-3

Prerequisites: M. E. 124, 125, 126 and M. E. 211, 212, 213.

Required of juniors in Mechanical Engineering II.

Principles of elementary freehand design; methods of dry-kilning, finishing, filling and staining. Dean: *Modern American Period Furniture*.

Mr. Rowland.

**M. E. 350. Advanced Engineering Drawing.**

0-3 or 3

Prerequisites: M. E. 105, 106, 107 and E. M. 302 or 313 or M. E. 101, 102, 103 and one of the following: Tex. 304, 310, 339, 381.

Elective: For advanced undergraduates.

Drawing-board work as related to special problems in the various engineering and textile fields. The course will also include lectures, recitations, and individual conferences.

Mimeographed problem sheets and handbooks will be used.

Messrs. Briggs and Brown.

**Courses for Graduates and Advanced Undergraduates****M. E. 401, 402, 403. Power Plants.**

3-3-3

Prerequisites: M. E. 307, 308, 309 and M. E. 313, 314, 315.

Required of seniors in Mechanical Engineering I.

Fuels and combustion; heat balance, steam boilers, prime movers, and auxiliaries, as applied to power generation. Morse: *Power Plant Engineering and Design*.  
Mr. Vaughan.

**M. E. 404. Heating and Air-Conditioning I.**

0-3-0

Prerequisites: M. E. 307, 308, 309.

Required of seniors in Mechanical Engineering I.

Principles of heating and ventilation; warm air, steam, and hot-water heating systems; air-conditioning. Severns: *Heating, Ventilating, and Air-Conditioning Fundamentals*.  
Mr. Vaughan.

**M. E. 405. Refrigeration.**

0-0-3

Prerequisites: M. E. 307, 308, 309.

Required of seniors in Mechanical Engineering I.

Theory of refrigeration; types of ice-making and refrigerating machinery; cooling for air conditioning; installation, management, and cost of operation. Sparks: *Mechanical Refrigeration*. Mr. Vaughan.

**M. E. 407, 408, 409. Mechanical Engineering Laboratory II.**

1-1-1

Prerequisites: M. E. 313, 314, 315.

Required of seniors in Mechanical Engineering I.

Advanced study and tests in the fields of power plants, air-cooled and liquid-cooled internal-combustion engines, heating and ventilation, metallurgy, fluid flow, compressed air, fuels and combustion, and lubrication. Rice: *Experimental Engineering*. Messrs. Bridges, Rice, and Perry.

**M. E. 411, 412, 413. Machine Design.**

3-3-3

Prerequisites: M. E. 317, 318, 319, E. M. 313, E. M. 322.

Required of seniors in Mechanical Engineering I.

Application of mechanics, kinematics, strength of materials, and metallurgy to the design of machinery; determination of proper materials, shape, size, and strength of various machine parts. Vallance: *Design of Machine Members*. Mr. Hoefer.

**M. E. 421, 422, 423. Internal-Combustion Engines.**

3-3-3

Prerequisites: M. E. 307, 308, 309.

Required of seniors in Aeronautical Engineering.

Thermal and mechanical characteristics of internal-combustion engines; with special reference to the design, construction, operation and performance of automotive, aircraft and Diesel engines and their accessories. Lichty, *Internal Combustion Engines*; current periodicals. Mr. Rice.

**M. E. 425, 426, 427. Internal Combustion Engines Laboratory.**

1-1-1

Prerequisites: M. E. 307, 308, 309.

Concurrent with M. E. 401, 402, 403 or M. E. 421, 422, 423.

Advanced study and testing of internal-combustion engines; their auxiliaries, and the materials used in their construction; fuels and lubricants. Rice: *Experimental Engineering*. Messrs. Bridges and Rice.



**M. E. 431, 432, 433. Theory of Welding.**

1-1-1

Prerequisites: M. E. 123 or equivalent.

Required of seniors in Mechanical Engineering IV.

A study of the fundamental gas and electric welding processes including equipment, materials and procedure. Special attention will be paid to the factors affecting welding and welds such as control of residual stresses, shrinkage and warpage, and weldability of metals, joint design, etc. *Handbook of the American Welding Society.*

Mr. Cope.

**M. E. 435, 436, 437. Welding Practice.**

1-1-1

Prerequisites: M. E. 123 or equivalent.

Required of seniors in Mechanical Engineering IV.

Fundamentals in the techniques of gas, D. C. and A. C. Welding.

Mr. Cope.

**M. E. 441, 442, 443. Physical Metallurgy.**

2-2-2

Prerequisites: M. E. 322, 323.

Required of seniors in Mechanical Engineering IV.

Phase rule and its industrial applications; hardenability, carburizing; grain size control; reactions in the solid state; surface reaction processes; significance and inter-relation of static and dynamic properties; effects of temperature upon physical properties; current technical literature.

Mr. Van Note.

**M. E. 445, 446, 447. Furniture Construction.**

3-4-5

Prerequisites: M. E. 341, 342, 343.

Required of seniors in Mechanical Engineering II.

Theory and practice in construction and finishing; factory processes and layout for quantity production. Dean: *Modern American Period Furniture.*

Mr. Rowland.

**M. E. 451, 452, 453. Heating and Air-Conditioning II.**

3-3-3

Prerequisites: M. E. 307, 308, 309 and M. E. 313, 314, 315.

Required of seniors in Mechanical Engineering III.

Principles of heating, ventilation, and refrigeration as applied to air-conditioning; design and operation of air-conditioning systems. Allen and Walker: *Heating and Air-Conditioning.* Messrs. Rice and Vaughan.

**M. E. 455, 456, 457. Heating and Air-Conditioning Lab. 1-1-1**

Prerequisites: M. E. 313, 314, 315.

Required of seniors in Mechanical Engineering III.

Testing heating and air-conditioning units, systems and controls; testing refrigerating equipment, ducts, methods of air-distribution, fuel-burning equipment, dust-control equipment, heat-resisting materials. *American Society of Heating and Ventilating Engineers' Guide.* Mr. Rice.

**M. E. 458, 459. Heating and Air-Conditioning Design. 0-3-3**

Prerequisites: M. E. 307, 308, 309 and M. E. 313, 314, 315.

Required of seniors in Mechanical Engineering III.

Design calculations from given conditions for a heating plant and an air-conditioning system; materials listed and cost of installation estimated. *American Society of Heating and Ventilating Engineers' Guide.*

Messrs. Rice and Vaughan.

**M. E. 461, 462, 463. Experimental Engineering. 3-3-3**

Prerequisites: M. E. 313, 314, 315 or equivalent as approved by faculty group.

Advanced engineering principles applied to a specific project dealing with heat, power, hydraulic machinery, metallography, aerodynamics, or general experimental work. A seminar period provided, and a written report required.

Messrs. Rice, Vaughan, and Wheeler.

**Courses for Graduates Only****M. E. 501, 502, 503. Advanced Engineering Thermodynamics. 3-3-3**

Prerequisites: M. E. 307, 308, 309 and M. E. 407, 408, 409.

Development of the thermodynamic equations and their application to advanced engineering problems.

Messrs. Hoefer and Rice.

**M. E. 505, 506, 507. Internal-Combustion Engine Design. 3-3-3**

Prerequisites: M. E. 421, 422, 423 and 407, 408, 409.

A thorough study of the field of internal-combustion engines; design of an engine to meet specific requirements. Pye: *Internal-Combustion Engines* Vol. I and II.

Mr. Rice.

**\*M. E. 513, 514, 515. Power Plant Design. 3-3-3**

Prerequisites: M. E. 401, 402, 403 and M. E. 307, 308, 309.

The design of a plant to fulfill conditions obtained by investigation and research; specifications for design and installation.

Messrs. Hoefer and Vaughan.

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\* Only one of these courses to be offered during any College year.

**\*M. E. 517, 518, 519. Design of Heating and Ventilating System. 3-3-3**

Prerequisites: M. E. 404 or M. E. 451, 452, 453 and M. E. 407, 408, 409.

The design of a heating system for specific conditions; specifications for installation; performance tests of heating equipment.

Messrs. Rice and Vaughan.

**M. E. 521, 522, 523. Mechanical Engineering Research. 3-3-3**

Prerequisites: M. E. 401, 402, 403 and M. E. 404.

Research and thesis in connection with M. E. 513, 514, 515 or M. E. 517, 518, 519 or M. E. 505, 506, 507.

Messrs. Rice, Vaughan.

## MILITARY SCIENCE AND TACTICS

**Mil. 101, 102, 103. Military Science I. (Infantry). 2-2-2**

This, the first-year basic course, is required of all physically-fit freshmen.

The National Defense Act and the R. O. T. C., Military Courtesy and Discipline; Military Hygiene and First Aid; Leadership; Rifle Marksmanship; Map Reading; Military Organization; Current International Situation; Military History and Policy; Obligations of Citizenship.

**Mil. 111, 112, 113. Military Science I (Signal Corps) 2-2-2**

This, the first-year basic course, is required of all physically fit freshmen enrolled in the Electrical Engineering School. Freshmen from other Engineering Schools may be selected for the Signal Corps course in order to fill the allotted War Department quota.

The National Defense Act and the R.O.T.C., Military Courtesy and Discipline; Military Hygiene and First Aid; Leadership; Rifle Marksmanship; Map Reading; Military Organization, General; Signal Corps Organization; Military History and Policy; Obligations of Citizenship; Signal Communication; Field Wire Systems and Material of Wire Communication.

**Mil. 201, 202, 203. Military Science II. (Infantry). 2-2-2**

This, the second-year basic course, is required of all physically fit sophomores who have completed Military Science 101.

Leadership, Musketry, Automatic Rifle, Scouting and Patrolling, Combat Principles of the Rifle Squad and Platoon; Interior Guard Duty and Military History.

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\* Only one of these courses to be offered during any College year.

**Mil. 211, 212, 213. Military Science II (Signal Corps). 2-2-2**

This, the second-year basic Signal Corps course, is required of all physically fit sophomores who have successfully completed Military Science I (Signal Corps).

Leadership; Signal Communication; Radio Communication, Radio Code Practice, Field Radio Systems; Organization of the Signal Corps, Interior Guard Duty, Automatic Rifle.

**Mil. 301, 302, 303. Military Science III. (Infantry). 3-3-3**

Prerequisite: M. S. II.

This, the first-year advanced course, is elective for selected juniors.

Aerial Photograph Reading; Leadership; Machine Gun, 37 MM. Gun, Three-inch Trench Mortar; Combat Principles; Supply and Mess Management; Field Fortifications; Care and Operation of Motor Vehicles; Defense Against Chemical Warfare.

**Mil. 311, 312, 313. Military Science III (Signal Corps). 3-3-3**

Prerequisite: M.S. II (Signal Corps).

This, the first-year advanced Signal Corps course, is elective for selected juniors.

Aerial Photograph Reading; Defense Against Chemical Warfare; Military Administration, Supply and Mess Management; Organization of the Army, Organization of the Signal Corps; Leadership; Automatic Rifle; Signal Communications, Homing Pigeons, Military Cryptography, Message Centers, Wire Communications, Field Wire Systems; Radio Communication, Code Practice, Field Radio Systems; Signal Communication Tactics, Combat Orders, General and Signal Orders, Combat Principles; Tactical Signal Communications.

**Mil. 401, 402, 403. Military Science IV. (Infantry). 3-3-3**

Prerequisite: M. S. III.

This, the second year advanced course, is required of all seniors who have completed the first-year advanced course.

Military Law; Officers Reserve Corps Regulations; Military History and Policy; Anti-Aircraft Defense; Leadership; Combat Principles of the Rifle Company; Heavy Weapons Company; Tanks and Mechanization; Combat Intelligence; and Signal Communications.

Credit will be given for work at other institutions maintaining a Senior unit of the Reserve Officers Training Corps as shown by the student's record, Form 131 A. G. O., evaluated and kept by the Professor of Military Science and Tactics.

**Mil. 411, 412, 413. Military Science IV (Signal Corps).**

Prerequisite: M. S. III (Signal Corps).

Military Law; Officers Reserve Corps Regulations; Methods of Instruction and Training; Motor Transportation; Signal Supply; Property Procurement and Funds; Combat Orders; Tactics; Leadership; Signal Communication; Military Cryptography; Message Center Procedure; Radio Communication; Code Practice; Field Radio Systems; Wire Communication; Material of Wire Communication; Field Wire Systems; Organization of the Signal Corps; Organization of Military Signal Communications.

**MODERN LANGUAGES****Basic Courses****French****\*M. L. 101, 102. Elementary French. 3-3-0 or 0-3-3**

Lectures on the structure, diction, pronunciation; and other matters of technique of the language, supplemented by easy readings and translations. Individual reports and conferences. No previous training in the language necessary. Mrs. Hall.

**\*M. L. 201. Elementary French Prose. 3 or 3 or 3**

Prerequisites: M. L. 101, 102 or equivalent.

**Military French.** For the duration, the object of this course will be the development of ability in written and spoken French dealing with army, navy, and aeronautical affairs. Mr. Ballenger and Mrs. Hall.

**M. L. 202. Intermediate French Prose. 3-0-0**

Prerequisite: M. L. 201 or equivalent.

A study of prose reading material, largely historical in nature. Attention given to the acquisition and extension of the student's basic vocabulary. Individual translation, parallel readings, and reports. Mr. Ballenger.

**German****\*M. L. 103, 104. Elementary German. 3-3-0 or 0-3-3**

Lectures on the structure and technique of the language, supplemented by easy readings and translations. Individual reports and conferences. No previous training in the language necessary. Mr. Hinkle.

\*Two years of high-school work will ordinarily be considered the equivalent of M. L. 101, 102, and 201; and of 103, 104, and 203.

**\*M. L. 203. Elementary German Prose.**

3 or 3 or 3

Prerequisites: M. L. 103, 104 or equivalent.

**Military German.** For the duration, the object of this course will be the development of ability in written and spoken German dealing with army, navy, and aeronautical affairs.

Mr. Hinkle and Mrs. Hall.

**M. L. 204. Intermediate German Prose.**

3-0-0

Prerequisites: M. L. 203 or equivalent.

A study of prose reading material, largely historical in nature. Attention given to the acquisition and extension of the student's basic vocabulary. Individual translations, parallel readings and reports.

Mr. Hinkle.

**Spanish**

**\*M. L. 105, 106. Elementary Spanish.**

3-3-0 or 0-3-3

Lectures on the structure, diction, pronunciation, and other matters of technique of the language, supplemented by easy readings and translations. Individual reports and conferences. No previous training in the language necessary.

Messrs. Ballenger and Hinkle.

**\*M. L. 205. Elementary Spanish Prose.**

3 or 3 or 3

**Military Spanish.** For the duration, the object of this course will be the development of ability in written and spoken Spanish dealing with army, navy, and aeronautical affairs.

Messrs. Ballenger and Hinkle.

**M. L. 206. Intermediate Spanish Prose.**

3-0-0

Prerequisite: M. L. 205 or equivalent.

A study of prose reading material, largely historical in nature. Attention given to the acquisition and extension of the student's basic vocabulary. Individual translations, parallel readings, and reports.

Mr. Ballenger.

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\*Two years of high-school work will ordinarily be considered the equivalent of M. L. 105, 106, and 205.

**\*\*Technical and Scientific Courses****M. L. 301. Technical French.**

0-3-0

Prerequisite: M. L. 202 or equivalent.

Readings and translations of relatively simple technical material, supplemented by lectures on terminology, vocabulary analysis, and other linguistic technique. Designed to meet the needs of students whose interest in the language is primarily that of reading ability. Choice of reading material adjusted to individual needs; may be taken by students of varying degrees of previous linguistic training.

Mr. Ballenger.

**M. L. 302. Introductory Scientific French.**

0-0-3

Prerequisite: M. L. 202 or equivalent.

A study of scientific French of intermediate difficulty, supplemented with lectures on terminology and other linguistic technique. The needs of students whose interest is that of the acquisition of a reading knowledge of the language, constantly kept in view. Basic technique of translation explained and demonstrated by means of personal conferences.

Mr. Ballenger and Mrs. Hall.

**M. L. 401, 402, 403. Advanced Scientific French.**

3-3-3

Prerequisite: M. L. 301 or 302 or equivalent.

A study of scientific literature appearing in current bulletins, magazines and technical journals. Students given the opportunity of working a translation project in connection with their subject of major interest. Special attention given to the comprehension of the thought of the article under consideration and its accurate rendition into English. Parallel readings, reports and conferences.

Messrs. Hinkle and Ballenger.

**M. L. 303. Technical German.**

0-3-0

Prerequisite: M. L. 204 or equivalent.

Reading and translations of relatively simple technical German, supplemented by lectures on terminology, word order, vocabulary analysis and other linguistic technique. Designed to meet the needs of students whose interest in the language is primarily that of reading ability. Choice of reading material adjusted to individual needs; may be taken by students of varying degrees of previous linguistic training.

Mr. Hinkle.

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**\*\* Students registered in advanced technical and scientific courses are given the opportunity of doing a translation project in connection with the Translation Service of the department. When such prospect is satisfactorily completed and accepted, it may be substituted in lieu of an examination as evidence of reading ability. This procedure is recommended as the preferable method of preparation for the acquisition of a reading knowledge of the language concerned.**

**M. L. 304. Introductory Scientific German.** 0-0-3

A study of scientific German of intermediate difficulty supplemented with lectures on terminology and other linguistic technique. The needs of students whose interest is that of the acquisition of a reading knowledge of the language, constantly kept in view. Basic technique of translation explained and demonstrated by means of personal conferences.

Mr. Hinkle and Mrs. Hall.

**M. L. 404, 405, 406. Advanced Scientific German.** 3-3-3

Prerequisite: M. L. 303 or 304 or equivalent.

A study of scientific literature appearing in current bulletins, magazines, and technical journals. Students given the opportunity of working a translation project in connection with their subject of major interest. Special attention given to the comprehension of the thought of the article under consideration and its accurate rendition into English. Parallel readings, reports, and conferences.

Mr. Hinkle and Mrs. Hall.

**M. L. 305. Technical and Industrial Spanish.** 0-0-0

Prerequisite: M. L. 206 or equivalent.

A study of technical and industrial literature. Particular attention given to the special terminology characteristic of such literature with a view to the acquisition of a practical vocabulary. Individual conferences and reports.

Mr. Ballenger.

**M. L. 306. Introductory Scientific Spanish.** 0-0-3

Prerequisite: M. L. 206 or equivalent.

Readings and translations of relatively simple scientific Spanish, supplemented by lectures on terminology, vocabulary analysis, and other linguistic technique. Designed to meet the needs of students whose interest in the language is primarily that of reading ability. Choice of reading material adjusted to individual needs; may be taken by students of varying degrees of previous linguistic training.

Mr. Ballenger.

**M. L. 407, 408, 409. Advanced Scientific Spanish.** 3-3-3

Prerequisite: M. L. 305 or 306 or equivalent.

A study of scientific literature appearing in current bulletins, magazines, and technical journals. Students given the opportunity of working a translation project in connection with their subject of major interest. Special attention given to the comprehension of the thought of the article under consideration and its accurate rendition into English. Parallel readings, reports, and conferences.

Mr. Ballenger and Mrs. Hall.



## General Courses

**M. L. 410. Masterpieces of French Literature. 3-0-0**

Prerequisite: Junior or Senior Standing.

The study of outstanding masterpieces of French literature. A brief outline of French literary development. Parallel reading either in translation or in French. An open elective. No language prerequisites.

Mr. Hinkle.

**M. L. 411. Masterpieces of German Literature. 0-3-0**

Prerequisite: Junior or Senior Standing.

The study of outstanding masterpieces of German literature. A brief outline of German literary development. Parallel readings either in translation or in German. An open elective. No language prerequisites.

Mr. Hinkle.

**M. L. 412, 413. Masterpieces of Spanish Literature. 0-3-3**

Prerequisite: Junior or Senior Standing.

The study of outstanding masterpieces of Spanish literature. A brief outline of Spanish literary development. Parallel readings either in translation or in Spanish. An open elective. No language prerequisites.

Mr. Hinkle.

**M. L. 414, 415. French, German and Spanish Civilization. 3-0-3**

Prerequisite: Junior or Senior Standing.

Lectures and reports on the manners and customs of the respective cultures under consideration. Fall Term devoted to their development in Europe; Spring Term devoted to Latin America. Topics, such as racial stocks, people, social classes, governments, politics and education given special consideration. Parallel readings, reports, and conferences. An open elective. No language prerequisites.

Mr. Hinkle.

**M. L. 416. The Development of Language. 0-3-0 or 3-0-0**

Prerequisite: Junior or Senior Standing.

The various phases of linguistic growth as a basis for intelligent language appreciation. Origin of language, linguistic change, grammatical categories, dialects, standard language, word order, inflection, isolation, agglutination, etymology, and other linguistic processes given special consideration. Parallel readings, reports, and conferences. An open elective. No language prerequisites.

Mr. Hinkle.

**M. L. 417. Masterpieces of Foreign Literature.**

0-0-3 or 3-0-0

Prerequisite: Junior or Senior Standing.

A study of outstanding literary productions in each of the various types of literature, and lectures on their cultural background. Designed primarily to meet the needs of students who wish to supplement their knowledge of their own literature with a survey of the literature of other civilizations. Special attention is given to the literary monuments of France, Germany, Spain, and Italy. No foreign language prerequisites are necessary. Daily reports and conferences.

Mr. Hinkle.

**PHYSICAL EDUCATION AND ATHLETICS****Courses and Activities****P. E. 101, 102, 103. Fundamental Activities and Hygiene.**

1-1-1

Required of all freshmen except those excused on the recommendation of the College physician.

Individual health and physical efficiency of each student based on standardized athletic, gymnastic, and efficiency tests. Lectures on personal hygiene required in one term only.

Mr. Miller and Staff.

**P. E. 201, 202, 203. Sports Activities.**

1-1-1

Prerequisites: P. E. 101, 102, 103.

Required of all sophomores except those excused upon recommendation of the College physician.

Election is permitted in popular sports for healthful exercise and a fair degree of skill in them.

Mr. Miller and Staff.

**P. E. 111, 112, 113. Restricted Activities.**

1-1-1

Required of all freshmen excused from P. E. 101, 102, 103.

Special activities for those students who cannot meet the requirements of the regular course because of physical handicap.

Mr. Miller and Staff.

**P. E. 211, 212, 213. Restricted Activities.**

1-1-1

Required of all sophomores excused from P. E. 201, 202, 203.

Special activities for those students who cannot meet the requirements of the regular course because of physical handicap.

Mr. Miller and Staff.

**P. E. 301, 302, 303. Theory and Practice of First Aid. 1 or 1 or 1**

Elective for juniors and seniors.

Hours by arrangement.

Anatomy and physiology sufficiently to proceed with bandages, dressings, wounds, shock, injuries to bones, joints, muscles, poisons, unconsciousness, artificial respiration, and common emergencies. Students completing the course are awarded the American Red Cross Certificate. Staff.

**P. E. 401. Social Recreation. 0-0-3**

Elective for juniors and seniors in Agr. Educ.

Purpose: To prepare teachers of agriculture to assume leadership in social and recreational activities. The organization, supervision, and practice work in athletic and social activities for parties, picnics, campus banquets, and similar occasions. Mr. Miller.

## PHYSICS

### Courses for Undergraduates

**Phys. 111, 112, 113. Physics for Textile Students. 4-4-4**

Required of freshmen in Textiles.

Industrial Physics, with emphasis on practical applications to the textile industry. Black: *College Physics*. Messrs. Hopkins, Fowler, Lynn.

**Phys. 115. Physics for Agricultural Students. 5 or 5 or 5**

Required of sophomores in Agriculture.

Elements of machines; physics of heat and weather; applications of light and electricity on the farm. Henderson: *The New Physics of Everyday Life*. Messrs. Heck, Lynn.

**Phys. 123. Descriptive Astronomy. 0-0-3**

Elective.

An elementary nonmathematical survey of the sun, planets, and stars; observations with telescope. Baker: *Introduction to Astronomy*. Messrs. Heck, Fowler.

**Phys. 201, 202, 203. Physics for Engineers.**

4-4-4

Prerequisite: Math. 103.

Required of sophomores in Engineering.

General Physics, with emphasis on problems and engineering applications.

Hausman and Slack: *Physics*.

Messrs. Heck, Derieux, Meares, Lancaster, Hopkins, Parker, Charles, Fowler, Lynn.

**Phys. 306. Electron Tubes and Their Application to Industry.**

Prerequisites: Phys. 113 or 203. Math. 103.

Elective.

Properties of electrons and electron emitters; gaseous conduction; thermionic and photoelectric tubes, theory and applications. Mr. Hopkins.

**Phys 311. Light in Industry.**

3-0-0 or 0-0-3

Prerequisite: Phys. 113 or Equivalent.

Required of Textile students: elective for other students.

Fundamentals of light, illumination, and color; psychology of color; standardized color theory; pigments, contrast, and harmony.

Text: *Light and Color in Industry*.

Mr. Lancaster.

**Phys. 322. Meteorology.**

0-3-0

Required of juniors in Forestry; elective for other students.

Causes of weather change; methods of forecasting; peculiarities of the weather of North Carolina. Blair: *Weather Elements*. Mr. Heck.

**Phys. 332. Photography.**

3 or 3 or 3

Prerequisite: Phys. 113 or equivalent.

Elective.

A general study of cameras, lenses, exposure, development, printing, types of emulsion, color sensitivity and color filters. Boucher: *Fundamentals of Photography*. Mr. Meares.

**Phys. 402, 403. Mechanics.**

0-3-3 or 0-4-4

Prerequisites: Phys. 203. Math. 303.

Elective.

The physical principles of mechanics. Edser: *Physics for Students*.

Mr. Meares.

**Phys. 405, 406. Electricity and Magnetism.**

3-3-0 or 4-4-0

Prerequisites: Phys. 203. Math. 303.

Elective.

Fundamental principles in a more specialized but intermediate manner. Laboratory, if taken, increases the course to 4 credits. Gilbert: *Electricity and Magnetism*.  
Mr. Lancaster.

**Phys. 407. Elementary Modern Physics.**

3 or 3 or 3

Prerequisites: Phys. 203, Math. 303, Chem. 211.

Required of juniors in E. E. and seniors in Ch. E.

New theories and discoveries in Physics, such as: the electron, atomic structure, spectra, X-rays, crystal structure, quantum theory, radiation, radio-activity, isotopes and cosmic rays. Brown: *Foundations of Modern Physics*.  
Mr. Derieux.

**Phys. 413. Acoustics.**

0-3-0

Prerequisites: Phys. 203. Math. 303.

Elective.

Production, propagation, transmission, and reception of sound, with special applications to architectural and electrical transmission problems. Olson: *Elements of Acoustical Engineering*.  
Mr. Parker.

**Phys. 415, 416. Light.**

0-3-3 or 0-4-4

Prerequisites: Phys. 203 or 207. Math. 303.

Elective.

Introduction to principles of geometrical and physical optics. Edser: *Light for Students*.  
Mr. Derieux.

**Phys. 417. Heat.**

3-0-0

Prerequisites: Phys. 203 or 207. Math. 303.

Elective.

Temperature measurement, specific heats, thermal expansion, conduction, radiation, kinetic theory, change of state, thermodynamics, low temperatures, high temperatures. Cork: *Heat*.  
Mr. Lynn.

**Phys. 426. Spectroscopy in Industry.**

0-3-0 or 0-4-0

Prerequisites: Phys. 203. Chem. 212.

Fundamental principles of light; spectroscopic equipment; spectra; qualitative analysis of composition by emission spectra; detection of impurities; quantitative analysis; absorption spectra; industrial applications, lectures, demonstrations, and laboratory. Lewis: *Spectroscopy in Science and Industry*; Brode: *Chemical Spectroscopy*.  
Mr. Derieux.

Phys. 427, 428, 429. **Optics.** 3-3-3 or 4-4-4

Prerequisite: Phys. 203, Math. 303.

Lenses and lens system, optical instruments, gratings, interferometers, spectra. Laboratory if taken gives 4 credits. Mr. Derieux.

Phys. 443. **History of Physics.** 0-0-3

Prerequisite: One course in College Physics.

Elective.

Development of Physics from its beginnings to the present time. Crew: *Rise of Modern Physics.* Mr. Heck.

Phys. 445, 446, 447. **Research.** 3-3-3

Prerequisite: Phys. 203 or 207 or 213.

Elective.

Undergraduate research given according to the student's ability. Mr. Heck.

Phys. 451, 452, 453. **Physics Colloquium.**

Current research reviewed by department and advanced students; meets weekly at night throughout the year. Mr. Heck.

Phys. 463. **Industrial X-Rays.** 0-0-3

Prerequisites: Phys. 203. Math. 303.

Theory and practice of X-rays in industry; X-ray equipment; photographic procedure; detection of defects in welds, castings, assemblies, stresses in members and fibers and crystal analysis demonstrations and student manipulation in each phase. Clark: *Applied X-rays.* St. John: *Industrial Radiography.* Mr. Charles.

Phys. 514, 515, 517. **Advanced Theory of Electricity and Magnetism.** 3-3-3

Prerequisites: Phys. 203. Math. 301.

Theorem of Gauss, energy in media, boundary conditions, condensers, electrometers, dielectric constants, migration of ions, thermodynamics of reversible cells, thermoelectricity, magnetic circuits, growth and decay of currents, oscillatory discharge. Starling: *Advanced Theory of Electricity and Magnetism.* Staff.

**Phys. 522. Discharge of Electricity in Gases.** 0-3-0

Prerequisites: Phys. 213. Math. 203.

Production of ions in gases, motion of ions, velocity in an electric field, diffusion, recombination, determination of atomic charge, ionization by collision, discharge tubes, cathode rays, positive rays, and X-rays. Crowther: *Ions, Electrons, and Ionizing Radiations*. Mr. Derieux.

**Phys. 525. Atomic Structures.** 3-0-0

Prerequisite: Phys. 312.

Elective.

Bohr's model, spectral formula, elliptical orbits, fine structure of spectral lines, Stark effect, Zeeman effect, Roentgen rays, Moseley's law, periodic system, isotopes, radioactivity, atomic nuclei, ionization, spectra and atomic structure, fluorescence, atomic magnetism. White: *Atomic Spectra*. Haas: *Atomic Structures*. Staff.

**Phys. 531, 532, 533. Research.** 3-3-3

Graduate students sufficiently prepared may undertake research in some particular field of Physics. At least six laboratory hours a week must be devoted to such research. Messrs. Heck and Derieux.

**POULTRY****Courses for Undergraduates****Poul. 201. General Poultry.** 3-0-0

Required of sophomores in Agriculture.

Fundamental principles of poultry production.

Messrs. Williams and Dearstyne.

**Poul. 301. Poultry Judging.** 4-0-0

Prerequisite: Poul. 201.

Required of juniors in Poultry Production; elective for others.

Mr. Williams.

**Poul. 303. Incubation and Brooding.** 0-0-3

Prerequisites: Phys. 115. Poul. 201.

Required of juniors in Poultry Production; elective for others.

Principles of incubation and brooding; feeding, housing, and rearing baby chicks. Mr. Williams.

**Poul. 311, 312. Poultry Anatomy and Physiology.** 3-3-0

Required of juniors in Poultry Science; elective for others.

A foundation for courses in poultry diseases and nutrition.

Mr. Gregory.

**Poul. 322. Poultry Production.** 0-4-0

Prerequisite: Poul. 201.

Developed for vocational teachers of agriculture. Elective for others.

Poultry disease problems; nutritional problems; judging methods.

Messrs. Dearstyne and Williams.

**Poul. 332. Preparation and Grading of Poultry Products.** 0-3-0

Prerequisite: Poul. 201.

Required of juniors in Poultry; elective for others.

Commercial fattening; grading and marketing eggs; refrigerating and storage; markets.

Mr. Williams.

**Poul. 333. Poultry Nutrition.** 0-0-4

Prerequisites: Chem. 101. Zool. 101 and 102. Poul. 201.

Required of juniors in Poultry Production; elective for juniors in Agriculture.

Feeds and feeding: Physiology of digestion, absorption, and elimination; mineral and vitamin requirements.

Messrs. Dearstyne and Gregory.

**Poul. 342. Turkey Production.** 0-3-0

Prerequisites: Poul. 101. Zool. 411.

Required of seniors in Poultry Science; elective for others.

Selection and mating; incubation; brooding poults; nutrition; grading and marketing.

Mr. Nesbit.

**Courses for Advanced Undergraduates**

**Poul. 401, 402. Poultry Diseases.** 4-4-0

Prerequisites: Poul. 201. Zool. 102. Poul. 401 prerequisite to Poul. 402.

Required of seniors in Poultry Science; elective for others.

Sanitation, parasite infestations and control, contagious and noncontagious diseases.

Mr. Gauger.



**Poul. 403. Sero-Diagnosis in Poultry Diseases. 0-0-3**

Prerequisites: Poul. 401, 402. Bot. 402.

Required of seniors in Poultry Science.

Basic immunological theory and technique; its application in the therapy and diagnosis of poultry disease. Mr. Greaves.

**Poul. 412. Commercial Poultry Plant Management. 0-3-0**

Prerequisite: Poul. 201.

Required of seniors in Poultry Science; elective for others.

Development and maintenance of a commercial plant; custom hatching, and commercial incubation; cost of production. Mr. Williams.

**Poul. 413. Selection and Mating of Poultry. 0-0-3**

Prerequisites: Poul. 201. Genetics, Zool. 411.

Required of seniors in Poultry Production, elective for juniors in Agriculture.

Methods of recognition and selection for mating from both standard and utility standpoints; study of progeny performance. Mr. Dearstyne.

**Poul. 423. Senior Seminar. 0-0-3**

Required of seniors in Poultry.

Mr. Dearstyne.

**Courses for Graduates Only****Poul. 501, 502, 503. Poultry Histology. 3-3-3**

Prerequisites: Poul. 311, 312, 401, 402. Zool. 461.

General histology of the tissues, special histology of the various systems of the body. Mr. Gregory.

**Poul. 511, 512, 513. Poultry Pathology. 3-3-3**

Prerequisites: Poul. 311, 312, 401, 501, 502, 503.

Various disease processes.

Mr. Gregory.

**Poul. 521. Poultry Physiology. 3-0-0**

Prerequisites: Poul. 311, 312, 401, 402, 501, 502.

Histology and pathology, emphasizing the effects of diseases on normal physiology. Mr. Gregory.

**Poul. 531, 532, 533. Poultry Research.** 3-3-3

Prerequisite: Eighteen term credits in Poultry.

Problems in Poultry nutrition, diseases, marketing, and breeding to be conducted as definitely outlined by the Department. Poultry Staff.

**Poul. 541, 542, 543. Seminar.** 3-3-3

Prerequisite: Eighteen credit hours in Poultry. Mr. Dearstyne.

**Poul. 551, 552, 553. Production Studies and Experiments.** 3-3-3

Prerequisites: Poul. 201, 333, 401, 402.

Problems in poultry nutrition, and breeding, and in commercial poultry production and marketing. Mr. Dearstyne.

## PSYCHOLOGY

### Courses for Undergraduates

**Psychol. 200. Introduction to Psychology.** 3 or 3 or 3

A study of the general characteristics and development of human behavior, emphasizing the problems of motivation, emotion, learning, and thinking. Mr. Moffie.

**Psychol. 201. Elementary Experimental Psychology.** 3-0-0

Introduction to experimental psychology. One lecture and two laboratory periods per week. Mr. Moffie.

**Psychol. 202. Psychology of Personality and Adjustment.** 0-3-0

Prerequisite: Psychology 200.

A study of the factors involved in the development of the normal personality. Mr. Moffie.

**Psychol. 303, 304. Educational Psychology.** 3-3-0

Required of students in Education; elective for others.

Applications of psychology to education; problems of learning, motivation, interests; the measurement of educational efficiency; mental hygiene. Mr. Moffie.

**Psychol. 337. Applied Psychology.**

0-3-0

Prerequisite: Psychology 200.

The practical application of psychological principles in special fields: analysis of problems arising in business, professional, and everyday life; the psychological aspects of personnel selection. Mr. McGehee.

**Psychol. 338. Industrial Psychology.**

0-0-3

Prerequisite: Psychology 200.

The application of psychological principles to the problems of modern industry; factors involved in industrial learning, methods of work, monotony, fatigue, illumination, accidents, morale of workers. Mr. McGehee.

**Psychol. 390. Social Psychology.**

0-0-3

Prerequisite: Psychology 200.

Social applications of psychology: social stimulation, response, and attitudes. Mr. McGehee.

### Courses for Advanced Undergraduates and Graduates

**Psychol. 411. Rural Social Psychology.**

3-0-0

For description of this course, see Rural Sociology 411. Mr. McGehee.

**Psychol. 470, 471, 472. Psychodiagnostic Techniques.**

3-3-3

Prerequisite: Six hours in Psychology.

Techniques of measuring intelligence, personality, aptitudes, and achievement. Practice in administration and interpretation of psychological tests.

Messrs. McGehee, Moffie.

**Psychol. 476. Psychology of Adolescence.**

0-0-3

Prerequisites: Ed. 303, 304, or six credits in Psychology.

Mental growth, social development, and interests of adolescent boys and girls. Mr. Moffie.

**Psychol. 478. Individual Differences.**

0-3-0

Prerequisite: Six hours in Psychology.

Nature, extent, and practical implications of individual differences and individual variation. Mr. McGehee.

**Courses for Graduates Only**

**Psychol. 512, 513, 514. Problems in Applied Psychology.** 3-3-3

Prerequisite: Twelve hours in Psychology.

Individual and group research problems in educational, industrial, and social psychology. Messrs. McGehee, Moffie.

**RELIGION**

(See Ethics, page 243)

**RURAL SOCIOLOGY**

**Courses for Undergraduates**

**Rural Soc. 302. Rural Sociology.** 3 or 3 or 3

Prerequisites: Soc. 202, 203 or Econ. 201, 202, 203.

Required of juniors in Rural Sociology, seniors in Agricultural Economics, and juniors in certain Education curricula.

The culture, social organization, and social problems of rural people with special reference to Southern rural life and proposed programs of development. Staff.

**Rural Soc. 401. Rural Leadership.** 3-0-0

Social role of leadership; types and numbers of leaders; sources and backgrounds; motivation and personal traits; experience, training, and education; how leaders gain and hold power; adjustment of leadership to the changing environment; biographies of different types of leaders; and new opportunities for rural leadership. Mr. Winston.

**Courses for Graduates and Advanced Undergraduates**

**Rural Soc. 402. Farmers' Movements.** 0-3-0

The origin, growth, and the present status of such National farmers' organizations and movements as: the Grange, the Farmers' Alliance, the Populist Revolt, the Agricultural Wheel, the Farmers' Union, the Society of the Equity, the Nonpartisan League, the Farm Bureau, the Farm-Labor Union, the Coöperative Marketing Movement. Mr. Seegers.

**Rural Soc. 411. Rural Population Problems.** 3-0-0

The number and distribution in relation to natural resources; physical and demographic characteristics; marriage rates; natural increase; migration; morbidity; mortality; occupations; rural-urban comparisons; trends; and national policies. Messrs. Hamilton, Winston.

**Rural Soc. 413. Community Organization.** 0-0-3

Prerequisite: Rural Soc. 302.

Required of seniors in Rural Sociology and in Agricultural Teaching.

Community organization in North Carolina and other States: structure and size; institutions and service agencies; disorganization techniques and methods of organization; leadership and the relation of organizations to State and National agencies.

Mr. Mayo.

**Rural Soc. 421. Rural Social Psychology.** 3-0-0

Characteristic mental traits and attitudes of rural people in relation to social organization and social change.

Mr. McGehee.

**Rural Soc. 422. Social Aspects of Land Tenure.** 0-3-0

Character and history of different types of land tenure; origins and growth of farm tenancy in the United States; social correlatives of land tenure; landlord-tenant relationships; the farm leases; problems of ownership; farm mortgages; reform programs.

Messrs. Hamilton, Forster.

**Rural Soc. 432. Rural Poverty and Relief.** 0-3-0

Origin, extent, and character of rural poverty; types and extent of relief; problems of prevention; public policies and programs.

Mr. Mayo.

**Rur. Soc. 451. Statistical Analysis of Social Data.** 3-0-0 or 0-0-3

Sampling social data, rural surveys and testing methods; analysis of variance and relationships; population studies. Application to problems in the fields of sociology, psychology and education.

Mr. Hamilton.

**Rural Soc. 453. Agricultural Extension and Education.** 0-0-3

History, objectives, and methods of agricultural extension and education in the United States.

Mr. Hamilton and Extension Staff.

**Courses for Graduates Only****Rural Soc. 531. Rural Standards of Living.** 3-0-0

Theories and surveys of rural standards of living. Forces and programs affecting present-day standards.

Mr. Hamilton.

**Rural Soc. 532. The Rural Family.** 0-3-0

Historical forms and functions of rural family life; family activities and relationships; stages of family growth; the family-sized farm; effects of technical and economic changes on the rural family; national policies.

Messrs. Hamilton, Winston.

**Rural Soc. 533. The Rural Community.** 0-0-3

Human ecology; types of communities; historical trends; economic, cultural, and psychological factors; solidarity and disorganization; special interest groups; service agencies; state and national relations; "Utopian" experiments; planning.  
Mr. Mayo.

**Rural Soc. 541, 542, 543. Research in Rural Sociology.** 3-3-3

Objectives of research; the scientific method; planning, organization, and direction of rural studies; preparation of schedules, interviewing, editing, tabulation, and analysis; field experience; preparation of research reports.

Credit for 543 involves at least 6 weeks' field and laboratory experience.

Staff.

## SOCIOLOGY

(For Courses in Rural Sociology see page 299)

### Courses for Undergraduates

**Soc. 101, 102, 103. Human Relations.** 2-2-2

Required of students in the School of Agriculture who do not take Military Science. Elective for others.

An orientation course to introduce the student to the social problems of our time.  
Staff.

**Soc. 201. Introductory Sociology.** 3-0-0 or 0-3-0 or 0-0-3

Required of students in Forestry; elective for others.

The basic principles underlying social life and the factors connected with it. (Identical with the first term of General Sociology.)

Messrs. Wnston, Mayo, Hamilton.

**Soc. 202, 203. General Sociology.** 3-3-0

First term: an analysis of the fundamental factors affecting life in modern society; second term: practical social problems, using the tools developed in the first term.  
Mr. Winston.

**Soc. Ex. 210. General Anthropology.** 3 credits

An introduction to the study of man: a consideration of his development from earliest forms to the present.  
Mr. Winston.

### Courses for Graduates and Advanced Undergraduates

**Soc. Ex. 400. Criminology.** 3 credits

Prerequisite: Soc. 202, supplemented by credits in related fields.

Causes and conditions leading to crime; methods of handling criminals; various factors producing criminal behavior. Mr. Winston.

**Soc. 401. Social Pathology.** 0-0-3

Prerequisite: Soc. 202, supplemented by credits in related fields.

Pathological problems arising from social life; social and individual adjustments. Mr. Winston.

**Soc. Ex. 402. Sociology of City Life.** 3 credits

Prerequisite: Soc. 202, supplemented by credits in related fields.

Elective.

Problems arising from growth of modern town and city life; city planning in regard to social and industrial progress. Mr. Winston.

**Soc. 403. Leadership.** 3-0-0

Prerequisite: nine term credits in Sociology, including Sociology 202.

A study of leadership in various fields of American life: analysis of the various factors, inherent or acquired, that are associated with leadership, past and present. Mr. Winston.

**Soc. Ex. 404. Educational Sociology.** 3 credits

Prerequisite: nine term credits in the Social Sciences.

Application of the principles of Sociology to the practical problems of education with emphasis placed on the relation between adjustment processes in the school and in the larger social world. Mr. Winston.

**Soc. 406. The American Family.** 0-3-0

Prerequisite: Soc. 202, supplemented by credits in related fields.

Premarital, marital, and family relations; effects of present-day social changes; various efforts to stabilize the family. Messrs. Winston, Hamilton.

**Soc. 407. Race Relations.** 3-0-0

Prerequisite: Soc. 202, supplemented by credits in related fields.

Elective.

Race problems in America and in other countries; social, economic, and educational status of racial groups; international relations.

Mr. Winston.

**Soc. Ex. 408. Social Anthropology.** 3 credits

Prerequisites: Soc. 202 or Soc. 210, supplemented by credits in related fields.

Analysis of present-day culture, with particular reference to the United States and its regional variations. Mr. Winston.

**Soc. 410. Industrial Sociology.** 0-0-3

Prerequisite: Soc. 202, supplemented by credits in related fields.

Influence of industrial life; occupations as social and industrial factors; problems arising from our industrial era. Mr. Winston.

**Soc. 411. Population Problems.** 3-0-0

Prerequisite: Soc. 202, supplemented by credits in related fields.

Analyses of crucial problems connected with the growth and decline of populations in the United States; factors connected with birth and death rates; marriage rates; discussion of the changing quality of population groups. Messrs. Winston, Hamilton.

**Soc. 415. Research in Applied Sociology.** 2-2-2

Prerequisite: nine hours of Sociology, and permission of the instructor.

Individual research problems in applied fields of sociology, such as problems of the family, of population, of social work; rural-urban relations; student success; American leadership. Mr. Winston.

## SOILS (AGRONOMY)

### Courses for Undergraduates

**Soils 201. Soils.** 5-0-0 or 0-0-5

Prerequisites: Geol. 120 and Chem. 101, 102, 103.

Required of sophomores in Agriculture and Agricultural Chemistry, and of juniors in Forestry and Wildlife Conservation and Management.

The makeup, origin and classification of soils; the soil as a medium for plant growth. Messrs. Lutz, Colwell.

**Soils 302. Fertilizers.** 3-0-0

Prerequisite: Soils 201.

Required of juniors in Pomology, Vegetable Gardening, Field Crops, Floriculture, and Vocational Agriculture.

Sources, manufacture and characteristics of fertilizer materials; manufacture and evaluation of mixed fertilizers; factors affecting the choice and utilization of fertilizers; time and methods of application. Mr. Collins.



**Soils 303. Soil Management. 0-0-3**

Prerequisite: Soils 302.

Rotations, fertilizer recommendations, and other practical soil management problems for North Carolina soils and cropping systems.

Mr. Lutz.

**Soils 312. The Soils of North Carolina. 0-3-0**

Prerequisite: Soils 201. Required of juniors in Soils and Floriculture and of seniors in Wildlife Conservation, Vegetable Gardening, and Agricultural Economics (Farm Business Option).

The origin, characteristics, and classification of North Carolina soils; field trips.

Mr. Lee.

**Courses for Graduates and Advanced Undergraduates****Soils 401. Soil Development. 3-0-0**

Prerequisites: Soils 303, 312.

Genesis, morphology, and development of the great soil groups of the world.

Mr. Lutz.

**Soils 421. Soil Fertility Evaluating Methods. 3-0-0**

Prerequisites: Soils 302 and Chem. 213.

Analysis for total and available elements in the soil; the use of soil and plant analyses in soil diagnosis.

Mr. Piland.

**Soils 433. Soil Conservation and Land Use. 0-0-3**

Prerequisite: Soils 201.

Required of seniors in Soils and in Agricultural Engineering.

Factors affecting soil deterioration; soil conservation and land use.

Mr. Lutz.

**Soils 443. Soil Microbiology. 0-0-3**

See Botany 443.

**Soils 463. Advanced Soil Fertility. 0-0-3**

Prerequisite: Soils 302.

Soil conditions affecting crop growth; the chemistry of soil and plant interrelationships; theoretical and applied aspects of fertilizer usage in relation to plant nutrition.

Mr. Cummings.

**Soils 491, 492, 493. Special Problems.**

3-3-3

Prerequisite: Admitted only with consent of the instructor.

Problems involving special library, laboratory or field studies of soils.

Staff.

**Courses for Graduates Only****Soils 502. Advanced Fertilizers.**

0-2-0

Prerequisite: Graduate standing in Soils.

Recent trends in the manufacture, characteristics and utilization of fertilizers; new developments in fertilizer experimentation. Offered in alternate years.

Mr. Collins.

**Soils 512. Physical and Colloidal Chemistry of Soils.**

0-5-0

Prerequisite: Graduate standing in Soils.

The origin and nature of inorganic and organic soil colloids; their behavior with respect to soil acidity, base exchange, absorption; and plant nutrition. Offered in alternate years.

Mr. Colwell.

**\*Soils 522. Soil Physics.**

0-5-0

Prerequisite: Graduate standing in Soils.

Physical constitution of soils, mechanical analysis, consistency and plasticity, structure, water relations, soil air and temperature. Offered in alternate years.

Messrs. Cummings, Lutz.

**Soils 531, 532, 533. Seminar.**

1-1-1

Prerequisite: Graduate standing in Soils.

Reports and discussions of problems in Soil Science.

Staff.

**Soils 541, 542, 543. Soil Research.**

Prerequisite: Graduate standing in Soils.

Research in specialized phases of Soil Science. By arrangement. Staff.

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\* Not given in 1942-43.

## TEXTILES

## Courses for Undergraduates

- Tex. 101, 102, 103. Textile Principles Laboratory.** 1-1-1  
 Required of freshmen in all Textile curricula.  
 Operation of plain and automatic looms, and carding and spinning machines. Messrs. Moser, Culberson.
- Tex. 104. Yarn Calculations.** 0-1-0  
 Required of freshmen in all Textile curricula.  
 Calculations for gears, pulleys, and machine speeds; systems of numbering yarns, and elementary yarn calculations. Mr. Culberson.
- Tex. 131. Cloth Calculations.** 0-0-2  
 Required of freshmen in all Textile curricula.  
 Harness, reed and fabric calculations; loom production problems. Mr. Moser.
- Tex. 205. Yarn Manufacture I.** 3-0-0 or 0-0-3
- Tex. 201, 203. Yarn Manufacture Laboratory I.** 1-0-1 or 0-1-1  
 Required of sophomores in all Textile curricula.  
 Mixing of cotton; description and setting of openers, pickers, cards and draw frames; production, speed and draft calculations; operation and fixing of machines; grinding and setting of cards; setting of draw frame rolls and construction of draw frames; weighting of rolls and types of roll covering. Messrs. Hilton, Culberson.
- Tex. 211. Knitting I.** 2-0-0 or 0-0-2
- Tex. 207, 208, 209. Knitting Laboratory I.** 1-1-1  
 Required of sophomores in all Textile curricula.  
 Selection and preparation of knitting yarns, knitting mechanisms, plain and rib knitting machines, circular ribbers, and circular automatic machines; operation of machines, practical experiments, hosiery analysis, topping, transferring, and looping. Mr. Lewis.

**Tex. 234. Power Weaving.**

0-2-0

**Tex. 231, 232. Power Weaving Laboratory.**

1-1-0 or 0-1-1

Required of sophomores in all Textile curricula.

Construction of auxiliary motions on plain looms; cams and their construction; drop-box loom construction; methods of pattern chain building; construction and value of pattern multipliers; timing of drop-box motion, and other motions.

Operation and fixing of plain, automatic and drop-box looms; pattern chain building for drop-box looms.  
Messrs. Nelson, Moser.

**Tex. 236, 237. Fabric Structure and Analysis.**

0-2-2 or 4-0-0

Required of sophomores in all Textile curricula.

Systems of numbering woolen, worsted, silk, linen, rayon, and cotton yarn; plain, twill, and sateen weaves; ornamentation of plain weaves; wave designs; pointed twills; diamond effects; plain and fancy basket weaves; warp and filling rib weaves.

Analyzing plain, twill, sateen, and other fabrics made from simple weaves, ascertaining the number of ends and picks per inch in sample; fabric analysis calculations.  
Messrs. Lewis, Moser.

**Tex. 239. Principles of Textile Manufacturing I.**

3-0-0

A study of the processes and machines used in textile manufacture, planned as an overview course for those preparing to be teachers of industrial arts in junior and senior high schools or in vocational schools.

Messrs. Nelson, Hilton.

### Courses for Advanced Undergraduates

**Tex. 304. Yarn Manufacture II.**

0-3-0

**Tex. 301, 302, 303. Yarn Manufacture Laboratory II.**

1-1-1

Prerequisites: Yarn Manufacture I, Tex. 201, 203, 205.

Required of juniors in Textile Manufacturing. Elective for others.

**Tex. 310, 311. Yarn Manufacture III.**

0-3-3

**Tex. 307, 308, 309. Yarn Manufacture Laboratory III.** 2-2-2

Prerequisites: Yarn Manufacture I, Tex. 201, 203, 205.

Required of juniors in Yarn Manufacture.

Construction of sliver lappers; ribbon lappers; combers; mechanical and electrical stop motions; description and setting of the different parts; care of machines; fly-frame builder and differential motions.

Operation and fixing of sliver lappers; ribbon lappers; combers and fly-frames; changing of hank roving, draft and twist; setting of drafting and speeder motions.

Messrs. Hilton, Culberson.

**Tex. 316. Knitting II.** 0-3-0**Tex. 313, 314, 315. Knitting Laboratory II.** 1-1-1

Prerequisites: Knitting I, Tex. 207, 208, 209, 211.

Elective for Textile Students.

Advanced circular mechanisms; hosiery design; auxiliary knitting machinery; warp and spring needle knitting; knitting machinery lay-out and organization. Production control and costs. Laboratory experiments.

Mr. Lewis.

**Tex. 335. Dobby Weaving.** 3-0-0 or 0-0-3**Tex. 331, 332, 333. Dobby Weaving Laboratory I.** 1-1-1

Required of juniors in Textile Manufacturing and Yarn Manufacturing. Elective for others.

**Tex. 337, 338, 339. Dobby Weaving Laboratory II.** 2-2-2

Prerequisites: Power Weaving, Tex. 231, 232, 234.

Required of juniors in Weaving and Designing.

Methods of drawing in and starting up cotton and rayon warps; setting of harness shafts; selection of springs or spring jacks. Construction and methods of fixing single and double index dobbies; methods of pattern-chain building.

Preparation of warps for weaving cotton and rayon fabrics on dobbie looms; starting up warps in looms; fixing single and double index dobbies; pattern-chain building; operation of dobbie looms. Messrs. Nelson, Hart.

**Tex. 341, 342. Fabric Design and Analysis I.** 3-3-0 or 0-3-3

Prerequisites: Fabric Structure and Analysis, Tex. 236, 237.

Required of juniors in Textile Manufacturing and Weaving and Designing. Elective for others.

Construction of fancy weaves, such as broken twills, curved twills, entwining twills; granite weaves; imitation leno; honeycomb weaves; fabrics backed with warp or filling; fabrics ornamented with extra warp or filling; combining weaves together to produce new patterns.

Analyzing samples of fancy fabrics for design, drawing in draft, reed, and chain plan; calculating particulars to reproduce fabrics from data obtained from sample.

Mr. Shinn.

#### Tex. 343. Fabric Testing.

0-0-1

Prerequisites: Fabric Structure and Analysis, Tex. 236, 237.

Required of juniors in Textile Manufacturing, Textile Chemistry and Dyeing, and Weaving and Designing.

Testing fabrics for strength; effect of heat upon fabrics; effect of regain upon tensile strength, elasticity of fabrics; micrometer and calculated tests for fabric thickness.

Mr. Shinn.

#### Tex. 344. Calculating Fabric Costs.

0-3-0

Prerequisites: Fabric Structure and Analysis, Tex. 236, 237.

Elective for Textile students.

Special attention is given to distribution of costs to various productive processes, summarizing costs, the determination and use of unit costs, and the making of cost reports.

Mr. Shinn.

#### Tex. 345. Textile Calculations I.

0-0-3

Prerequisites: Fabric Structure and Analysis. Tex. 236, 237.

Required of juniors in Textile Manufacturing and Weaving and Designing. Elective for others.

An intensive course in calculations for designing, weaving, and analyzing cotton, rayon, silk, wool, worsted and linen yarns and fabrics; weight of fabrics, ends and picks per inch; costing of fabrics; reed and harness calculations; loom speed and production.

Mr. Hart.

#### Tex. 347. Principles of Textile Manufacturing II.

0-0-3

Prerequisites: Principles of Textile Manufacturing I, Tex. 239.

A study of the operation and care of textile machines, planned for those who are preparing to be teachers in vocational schools.

Messrs. Nelson, Hilton.

**Tex. 375. Dyeing I.** 3-0-0 or 0-0-3  
and

**Tex. 371, 372, 373. Dyeing Laboratory I.** 1-1-1  
Prerequisites: Chemistry 103.

Required of juniors in Textile Manufacturing. Elective for others.

Physical and chemical properties of textile fibres; chemicals used in preparing fibres for dyeing; methods of applying substantive, sulphur, basic, developed, acid, acid chrome, mordant and vat dyes; effect of changes in temperature and volume of the dye bath; theory of dyeing mixed fabrics; theory of mercerizing; tests for the chemical constituents of the fibres; dyeing experiments using all the different classes of dyes on the various fibres; tests showing effect of varying such factors as bath, temperature and time; test for fastness to light, washing, cross-dyeing, and so forth; mercerizing experiment.  
Messrs. Grimshaw, Hayes.

**Tex. 381, 382. Dyeing II.** 3-3-0  
and

**Tex. 377, 378, 379. Dyeing Laboratory II.** 2-2-2  
Prerequisite: Chemistry 103.

Required of juniors in Textile Chemistry and Dyeing.

Physical and chemical properties of textile fibres; lectures on wool, silk, rayon, and cotton; hydrometers and chemicals used in dyeing and finishing; application of dyestuffs to different fibres; effect of changing bath, temperature, or time factor; money value and strength tests of dyes; theory of dyeing mixed fabrics; mercerizing.

Microscopic examination of textile fibres; dyeing experiments using different classes of dyes on textile fibres; tests showing the effects of varying such factors as bath, temperature, and time; fastness to light, washing, and cross dyeing; money value and strength of various dyes; mercerizing.

Messrs. Grimshaw, Hayes.

#### Courses for Graduates and Advanced Undergraduates

**Tex. 405. Yarn Manufacture IV.** 3-0-0 or 0-0-3

**Tex. 401, 402, 403. Yarn Manufacture Laboratory IV.** 1-1-1  
Prerequisites: Yarn Manufacture, Tex. 301, 302, 303, 304.

Required of seniors in Textile Manufacturing. Elective for others.

**Tex. 411, 412. Yarn Manufacture V.** 3-3-0

**Tex. 407, 408, 409. Yarn Manufacture Laboratory V.** 2-2-2

Prerequisites: Yarn Manufacture, Tex. 307, 308, 309, 310, 311.

Required of seniors in Yarn Manufacturing.

Spinning; spooling; warping; twisting; description and setting of different parts; builder motions for warp and filling; bobbin holders, thread guides, traverse motions; ply yarns; calculations for twist, speed, and production.

Practical methods of spinning, warping, spooling, winding and twisting; setting of spinning rolls, spinning frame builder motions for warp, filling, and combination build the practical application of all machines in Yarn Manufacture.  
Messrs. Hilton, Culberson.

**Tex. 413. Textile Calculations II.** 3-0-0

Prerequisites: Yarn Manufacture II or III, Tex. 304 or 310, 311.

Required of seniors in Yarn Manufacturing. Elective for others.

Principles underlying the calculation of draft, twist, speed, and production; systems of numbering yarns; doubling and twisting yarns; lay, tension, differential, and cone drum calculations; practice in solving practical mill problems.  
Mr. Hilton.

**Tex. 415. Manufacturing Problems.** 0-0-3

Prerequisites: Yarn Manufacture II or III, Tex. 304 or 310, 311.

Required of seniors in Yarn Manufacturing. Elective for others.

Mill organization and administration; machine layout for long and regular draft spinning; production control and costs; making of novelty yarns; making of daily and weekly reports; breaking of single and ply yarns; regular and reverse twisted yarns.  
Mr. Hilton.

**Tex. 416. Wool Manufacture I.** 0-3-0

**Tex. 417, 418. Wool Manufacture Laboratory I.** 1-1-0

Prerequisites: Yarn Manufacture II or III, Tex. 304, or Tex. 310, 311.

Elective for seniors in Textile School.

Physical and chemical properties; reclaimed wool and secondary raw materials; grading; sorting; mixing and blending; oiling and garnetting; description of feeders; cards; tape condensers; card setting; stripping and grinding; woolen spinning; twister head; mechanical details and production; the practical application of machines in Woolen Yarn Manufacture.  
Mr. Hilton.

**Tex. 435. Cotton, Wool and Rayon Weaving.** 0-0-3



**Tex. 431, 432. Cotton, Wool and Rayon Weaving Laboratory I. 1-1-0**

Prerequisites: Dobby Weaving, Tex. 331, 332, 333, 335.

Required of seniors in Textile Manufacturing. Elective for others.

**Tex. 437, 438, 439. Cotton, Wool and Rayon Weaving Laboratory II. 2-2-1**

Prerequisites: Dobby Weaving, Tex. 335, 337, 338, 339.

Required of seniors in Weaving and Designing.

Principles of loom construction to weave rayon and fine cotton fabrics; pick and pick looms; box and multiplier chain-building; arrangement of colors in boxes to give easy running loom; extra appliances for weaving leno, towel, and other pile fabrics; construction and operation of single, double lift, and rise and fall jacquards; tie-up of harness for dress goods, table napkins, damask, and other jacquard fabrics, such as leno; relative speed of looms; production calculations and fabric costs.

Operation and fixing of doobby, pick and pick, and jacquard looms; preparation of warps to weave rayon, wool and fine cotton fabrics; building of box, doobby, and multiplier chains.

Messrs. Nelson, Hart.

**Tex. 441. Leno Design.**

3-0-0 or 0-3-0

Prerequisites: Fabric Design and Analysis I, Tex. 341, 342.

Required of seniors in Textile Manufacturing and in Weaving and Designing. Elective for others.

Leno weaves with one, two, or more sets of doups; combination of plain and fancy weaves with leno; methods of obtaining leno patterns; methods of making original designs for dress goods, draperies.

Messrs. Nelson, Shinn.

**Tex. 443. Dobby Design.**

3-0-0 or 0-3-0

Prerequisites: Fabric Design and Analysis I, Tex. 341, 342.

Required of seniors in Textile Manufacturing and in Weaving and Designing. Elective for others.

Designing fabrics, such as fancy crepes, figured double plain, matelasse, velvets, corduroys, pique, lines of samples.

Mr. Nelson.

**Tex. 445. Jacquard Design.**

0-0-3

Prerequisites: Fabric Design and Analysis I, Tex. 341, 342.

Required of seniors in Textile Manufacturing and juniors in Weaving and Designing. Elective for others.

Designing fancy and jacquard fabrics; methods of making original designs for table napkins, table covers, dress goods, draperies.

Messrs. Nelson, Shinn.

**Tex. 447, 448, 449. Jacquard Design Laboratory. 1-1-1**

Prerequisites: Jacquard Design, Tex. 445.

Required of seniors in Weaving and Designing.

Designing fancy and jacquard fabrics; methods of making original designs by combinations of color, weave, and sketches; designs for table napkins, table covers, dress goods, draperies. Messrs. Nelson, Shinn.

**Tex. 451, 452. Fabric Analysis. 2-2-0**

Prerequisites: Fabric Design and Analysis, Tex. 341, 342.

Required of seniors in Textile Manufacturing and Weaving and Designing. Elective for others.

Analyzing samples of cotton, wool, worsted, linen, rayon, and silk fabrics for size of yarns, ends and picks per inch, weight of warp and filling, so as to accurately reproduce samples analyzed; obtaining design, drawing in draft, chain, and reed plan for fancy fabrics, such as stripes, checks, extra warp and extra filling figures, leno fabrics, jacquard fabrics, draperies.

Messrs. Nelson, Shinn.

**Tex. 453. Fabric Design and Analysis II. 0-0-3**

Prerequisites: Fabric Design and Analysis I, Tex. 341, 342.

Required of seniors in Weaving and Designing.

Design and analysis of fancy fabrics; making fabrics from sketches and specifications. Mr. Shinn.

**Tex. 455, 456. Color in Woven Design. 3-3-0**

Prerequisites: Fabric Structure and Analysis, Tex. 236, 237.

Required of seniors in Weaving and Designing. Elective for others.

Pigment and light theories of color; contrast and harmony of color; factors which influence quality, style, and color; methods of applying weaves and color to fabrics for wearing apparel and home decorations.

Mr. Hart.

**Tex. 457, 458, 459. Textile Testing. 1-1-1**

Prerequisite: Fabric Testing, Tex. 343 or equivalent.

Elective for Textile students.

Tests for moisture content, regain, twist, and tensile strength; description and operation of testing equipment; solution and written reports of assigned textile problems. Messrs. Hart, Hilton, Shinn.

**Tex. 474. Cotton and Rayon Dyeing I. 0-3-0**

**Tex. 471, 472, 473. Cotton and Rayon Dyeing Laboratory I. 1-1-1**

Prerequisites: Dyeing I, Tex. 371, 372, 373, 375.

Required of seniors in Textile Manufacturing. Elective for others.

Lectures on color mixing, money value of dyes; testing of dyes, water, starch, and materials used in sizing; lubricating oils and oil compounds; processes and machinery used in dyeing and finishing; textile printing; apparatus used in research laboratory.

Color matching; testing dyes for strength and money value; physical and chemical examination and application of starches, sizing materials and finishing compounds; examination of textile oils, soap, and all the different rayons; analysis of mixed fabrics. Messrs. Grimshaw, Hayes.

**Tex. 475. Textile Microscopy I. 0-0-1**

Prerequisites: Dyeing I or II, Tex. 375 or 381, 382.

Required of seniors in Textile Manufacturing. Elective for others.

Instruction in the use of the microscope; examination of fibres; preparation of permanent slides. Messrs. Grimshaw, Hayes.

**Tex. 480, 481. Cotton and Rayon Dyeing II. 0-3-3****Tex. 477, 478, 479. Cotton and Rayon Dyeing Laboratory II. 2-2-2**

Prerequisites: Dyeing II, Tex. 377, 378, 379, 381, 382.

Required of seniors in Textile Chemistry and Dyeing.

Theories of color matching; lectures on color mixing, water and mold, starch, materials used in sizing; lubricating oils, textile oils and oil compounds; processes and machinery used in dyeing and finishing; method of analyzing textile fabrics; laboratory equipment used in textile research and testing laboratories.

Color matching; physical and chemical examination and application of textile oils, soaps, and finishing compounds; microscopical and chemical tests on rayons; dyeing various types of rayon; operation of dyeing and finishing equipment in the dye house and research laboratories.

Mr. Grimshaw.

**Tex. 487. Textile Printing. 3-0-0****Tex. 483, 484, 485. Textile Printing Laboratory. 1-1-1**

Prerequisites: Dyeing II, Tex. 381, 382.

The history of printing and the development of machinery used; calico printing and the mordant, basic, and vat colors, aniline black, indigo, and insoluble azo colors; resist and discharge styles.

Paste mixing; practical experiments. Messrs. Grimshaw, Hayes.

**Tex. 489, 490. Textile Microscopy II. 1-1-0**

Prerequisites: Dyeing I or II, Tex. 375 or 381, 382.

Required of seniors in Textile Chemistry and Dyeing. Elective for others.

Instruction in the use of the microscope; examination of fibres; preparation of permanent slides. Messrs. Grimshaw, Hayes.

**Tex. 495. Principles of Fabric Finishing. 0-0-3****Tex. 491, 492, 493. Principles of Fabric Finishing Laboratory. 1-1-1**

Prerequisites: Dyeing II, Tex. 371, 372.

Elective for Textile students.

A study of machinery used in finishing of textile fabrics and in textile printing, with lectures and pictures; lectures on materials used in the textile finishing and printing industry and experiments. Mr. Grimshaw.

### Courses for Graduates Only

**Tex. 501, 502, 503. Yarn Manufacture. 3-3-3**

Prerequisites: Yarn Manufacture IV, Tex. 405 or equivalent.

A study of breaking strength and related properties of cotton yarns made under various atmospheric conditions; comparison of yarns produced from long and short-staple cotton with regular and special carding processes; efficiency of various roller covering materials at the drawing processes; elimination of roving processes by special methods of preparation; comparison of regular and long-draft spinning. Mr. Hilton.

**Tex. 505, 506, 507. Textile Research. 3-3-3**

Prerequisite: Graduate standing.

A study of the moisture content of cotton yarns and fabrics; the convolutions in cotton fibres and their relation to spinning, weaving, and dyeing; the effect of mercerization on cotton yarns and fabrics; testing yarns and fabrics under variable conditions for breaking strength and elasticity. Textile Staff.

**Tex. 531, 532, 533. Textile Design and Weaving.** 3-3-3

Prerequisites: Leno, Dobby and Jacquard Design, Tex. 441, 443, 445 or equivalent.

Study and practice in more advanced designing and analysis of fabrics, such as lenos made with twine and wire doups, lappits, and other fancy fabrics; designing for jacquard dress goods, table covers, reversibles, and other fabrics; making original designs for doobby and jacquard fabrics; fabric costs; weaving fancy and jacquard fabrics.

Messrs. Nelson, Hart, Shinn.

**Tex. 535, 536, 537. Seminar.** 1-1-1

Discussion of scientific articles of interest to textile industry; review and discussion of student papers and research problems. Textile Staff.

**Tex. 571, 572, 573. Textile Dyeing.** 3-3-3

Prerequisites: C. & R. Dyeing I, Tex. 474 or equivalent.

The course consists of matching shades from standard and season color cards upon classes of materials which require skill in their dyeing, such as three-fibre, cotton-wool, and half-silk hosiery, woolens and worsteds with effect stripes, and cotton fabrics with woven figures or stripes of the different varieties of rayon; advanced work on chemical and microscopical examination of materials used in dyeing and finishing. Mr. Grimshaw.

**Tex. 575. Advanced Textile Microscopy.** 0-0-3

Prerequisites: Textile Microscopy, Tex. 489, 490.

Microscopic study of textile starches, fibres, fabrics, oils, etc.; study of mounting media for above; methods of mounting textile materials; methods of cross-sectioning textile materials; photomicrography. Mr. Grimshaw.

## ZOOLOGY

### Courses for Undergraduates

**Zool. 101. General Zoölogy.** 4-0-0

Required of freshmen in General Agriculture, Agricultural Education, Forestry, Wildlife Conservation, and of juniors in Agricultural Engineering.

Animals with special reference to the morphology and physiology of vertebrates. Messrs. Kulash, Mitchell, McCutcheon, Stevens, Wing.

**Zool. 102. Economic Zoölogy.** 0-4-0

Required of freshmen in Forestry and Wildlife Conservation; of sophomores in General Agriculture, Agricultural Education, and in Agricultural Chemistry; of juniors in Landscape Architecture.

Animals with special reference to the more important economic groups; designed to give the student a general knowledge of the animal kingdom.

Messrs. Kulash, Mitchell, Stevens.

**Zool. 111. Elementary Wildlife Management.** 1-0-0

Required of freshmen in Wildlife Conservation.

An introductory survey of the field of wildlife management.

Mr. Stevens.

### Courses for Advanced Undergraduates

**Zool. 202. Animal Physiology.** 0-5-0 or 0-0-5

Prerequisites: Zool. 101, Phys. 115, Chem. 101, 102, and 103. Alternate for sophomores in General Agriculture, Agricultural Education and Agricultural Chemistry; required of juniors in Wildlife Conservation.

Comparative physiology of vertebrates, with particular reference to mammals and man. Detailed studies of various functions, with metabolism emphasized.

Mr. McCutcheon.

**Zool. 213. Economic Entomology.** 0-0-4

Prerequisite: Zool. 102.

Required of freshmen in Forestry; juniors in Wildlife Conservation, Landscape Architecture, Agricultural Education, Vegetable Gardening, Pomology, Plant Pathology and Floriculture.

The insects, including their economic importance and the principles of control.

Messrs. Mitchell, Wing, Kulash.

**\*Zool. 222, 223. Comparative Anatomy.** 0-4-4

Prerequisites: Zool. 101, 102.

Required of sophomores in Wildlife Conservation; of juniors in Entomology.

Comparative morphology of vertebrates. Interrelations of organ systems studied for the various groups.

Mr. Harkema.

Prerequisite: Zool. 102.

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\* Not offered in 1943-44.

**Zool. 241, 243. Beekeeping.** 3-0-3

Prerequisite: Zool. 102.

Required of seniors in Entomology.

Scientific beekeeping and honey marketing.

**Zool. 251, 252, 253. Ornithology.** 2-2-2

Prerequisites: Zool. 101, 102.

Required of sophomores in Wildlife Conservation.

Biology and morphology of North American birds. Mr. Metcalf.

**Zool. 302. Forest Entomology.** 0-3-0

Prerequisite: Zool. 213.

Required of juniors in Forestry.

Forest insects, including the factors governing abundance, and the application of this knowledge in control. Mr. Kulash.

**Zool. 312. Principles of Game Management.** 0-3-0 or 0-0-3

Elective for juniors and seniors not in Game Management.

Brief survey of the field, study of the major principles involved, and the correlation of wildlife management with other land uses. Mr. Stevens.

**Zool. 321, 322, 323. Wildlife Conservation.** 3-3-3

Prerequisites: Zool. 251, 252, 253, F. C. 202, Bot. 101, 102, 203.

Required of juniors in Wildlife Conservation and Management.

History of game and wildlife management; relation of wildlife conservation to soil and forest conservation; national and state parks; general farming operations. Mr. Stevens.

**Zool. 332. Fur Resources.** 0-3-0

Prerequisites: Zool. 321, 322, 323.

Elective for juniors and seniors in Wildlife Conservation.

Life history and management of the important fur-bearing animals; skinning, drying, marketing pelts; fur farming. Mr. Stevens.

## Courses for Graduates and Advanced Undergraduates

Zool. 401, 402, 403. Applied Entomology. 3-3-3

Prerequisites: Zool. 213.

Required of seniors in Entomology.

Crop and animals pests with emphasis on their identification; general principles of insect control and special study of contact insecticides, stomach poisons and fumigants; insecticide research methods. Mr. Fulton.

Zool. 411. Genetics. 4-0-0

Prerequisite: Bot. 102 or Zool. 101.

Required of juniors in Animal Production, Entomology, Field Crops, Floriculture, Pomology, Poultry Science, and Vegetable Gardening; of seniors in Plant Pathology.

Basic principles of heredity and variation. Students conduct breeding experiments and study inheritance in various animals and plants.

Mr. Bostian.

Zool. 412. Advanced Genetics. 0-4-0

Prerequisite: Zool. 411.

Elective for juniors, seniors, and graduates.

Intended for students desiring more thorough and detailed training in fundamental genetics than provided by Zool. 411, with some attention to biometry and recent advances.

Mr. Bostian.

Zool. 413. Advanced Physiology. 0-0-3

Prerequisites: Zool. 101, 102, 202.

Elective for juniors and seniors.

Special studies in animal physiology with emphasis on fundamental processes involved. Lectures, reports, and conferences to promote an acquaintance with general literature and recent advances; selected exercises and demonstrations to develop experimental technique. Mr. McCutcheon.

Zool. 421, 422, 423. Systematic Zoölogy. 3-3-3

Prerequisites: Zool. 101, 102.

Required of juniors in Entomology.

The classification of insects or other groups of animals.

Messrs. Metcalf, Mitchell.



**Zool. 433. Field Zoölogy.**

0-0-4

Prerequisites: Zool. 101 and 213, or 222, 223.

Required of juniors in Wildlife Conservation and seniors in Entomology.

The relation between animals and their environment. Frequent excursions to the field will be taken.

Messrs. Bostian, Wing.

**\*\* Zool. 441, 442, 443. Microtechnic and Histology.**

3-3-3

Prerequisites: Zool. 101, 102, 202, 222, 223.

Required of seniors in Entomology.

Animal tissues and their preparation.

Mr. Harkema.

**Zool. 451, 452, 453. Wildlife Management.**

3-3-3

Prerequisites: Zool. 321, 322, 323.

Required of seniors in Wildlife Conservation.

Foods and feeding habits of the more important groups of wild animals; field and laboratory studies of wildlife management and research; the economic relations of game, predatory, and fur-bearing animals.

Mr. Stevens.

**Zool. 461. Vertebrate Embryology.**

5-0-0

Prerequisites: Zool. 101, 102.

Required of juniors in Poultry Science, and seniors in Entomology.

The comparative embryology of the principal groups of vertebrates, with special emphasis on the chick.

Mr. Harkema.

**Zool. 462, 463. Advanced Animal Ecology.**

0-3-3

Prerequisite: Zool. 433.

Required of seniors in Wildlife Conservation.

Animal geography and the factors which influence the distribution of animals.

Mr. Metcalf.

**Zool. 471, 472, 473. Advanced Wildlife Management.**

3-3-3

Prerequisite: Concurrently with or preceded by Zool. 321, 322, 323.

Elective for seniors in Wildlife Conservation.

An assigned problem to be planned and worked out by the student. A term paper covering the procedure.

Mr. Stevens.

**Zool. 481, 482, 483. Advanced Food Habits Problems. 3-3-3**

Prerequisite: Concurrently with or preceded by Zool. 451, 452, 453.

Elective for seniors in Wildlife Conservation.

Assigned or selected problem dealing with the foods and feeding habits of one species of wild animal or a group of similar wild animals.

Mr. Stevens.

**Zool. 492, 493. Parasitology. 0-3-3**

Prerequisite: Zool. 101, 102, 222, 223.

Required of seniors in Wildlife Conservation.

Structures, life-cycles, pathogenicity and control of animal parasites.

Mr. Harkema.

**Courses for Graduates Only**

**Zool. 501, 502, 503. Systematic Entomology. 3-3-3**

Prerequisite: Zool. 421, 422, 423.

Codes of nomenclature, methods of writing descriptions, constructing keys, determining priority, selecting and preserving types, and making bibliographies and indexes.

Messrs. Metcalf, Mitchell.

**Zool. 511, 512, 513, and Zool. 551, 552, 553. Research in Zoölogy. 3-3-3**

Prerequisite: eighteen term credits in Zoölogy.

Problems in development, life history, morphology, physiology, ecology, genetics, game management, taxonomy, or parasitology.

Messrs. Metcalf, Mitchell, Bostian, McCutcheon, Harkema, Stevens.

**Zool. 521, 522, 523. Seminar. 1-1-1**

Prerequisite: eighteen term credits in Zoölogy.

Mr. Metcalf.

**Zool. 531, 532. Biological Control of Insects. 3-0-0**

Diseases, predators and parasites of insects; methods of rearing and disseminating for biological control.

Messrs. Fulton, Smith.

**Zool. 533. Advanced Genetics. 0-0-3**

Prerequisite: Zool. 411, 412.

Special topics and recent advances, accomplished by lectures, references, conferences, and reports by students, each selecting one or more topics for special study.

- Zool. 541, 542. Insect Physiology.** 3-3-0  
 Prerequisite: Zool. 202.  
 Mechanisms involved in the life processes of insects. Mr. McCutcheon.
- Zool. 543. Fruit Insects.** 0-0-3  
 Prerequisite: Zool. 213 or equivalent.  
 The economic importance of insects attacking fruit or fruit trees; their characteristics, habits, ecology, and biology; with most practical control measures. Mr. Smith.
- Zool. 551, 552, 553. Research in Zoölogy.** 3-3-3  
 See Zool. 511, 512, 513.
- Zool. 561, 562, 563. Insect Biology.** 3-3-3  
 Life histories, including modes of reproduction, embryology, growth, metamorphosis, protection, food relations, hibernation, social relations, and adaptations.
- Zool. 571, 572, 573. Insect Ecology and Behavior.** 3-3-3  
 Natural activities of insects: feeding, protection, reproduction, reaction to environmental factors, interrelations, and distribution. Mr. Fulton.
- Zool. 581, 582, 583. Insect Morphology.** 3-3-3  
 The external and internal anatomy of insects and their near relatives. Mr. Metcalf.
- Zool. 591. Immature Insects.** 0-3-0  
 Prerequisite: Zool. 102 and 213 or equivalent.  
 Methods of collecting, preserving and determining immature insects. Mr. Smith.

## V. SUMMARY OF ENROLLMENT

1942-43\*

### 1. Resident Students

#### A. Candidates for Degrees

1. Freshmen .....	1,166
2. Sophomores .....	594
3. Juniors .....	359
4. Seniors .....	339
5. Graduates .....	50

Total .....	2,508
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#### B. Irregular Students

†1. Extension Classes in Raleigh and Cary .....	155
2. Special Students and Auditors .....	14

Total .....	269	3,777
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### †2. Nonresident Students

A. Correspondence Students for College Credit .....	510
B. Extension Students (Classes outside Raleigh) .....	112
C. Correspondence Students in Practical Courses, no credit .....	39

Total .....	661	3,438
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### 3. Summer School Students, 1942

#### A. Regular Students

1. Summer term (twelve weeks) .....	428
2. Ten weeks .....	16
3. Six weeks .....	831
4. Three weeks .....	19

B. Cotton Classing Students, no credit .....	12
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Total .....	1,306	4,744
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### 4. Short Courses and Special Conferences

1. Engineering, Science and Management Defense Training Courses .....	1,663
2. Engineering, Science and Management Training Courses .....	1,778
3. North Carolina Society of Surveyors .....	20
4. Brake School for N. C. Truck Operators Asso. ....	42
5. Industrial Plant Protection School .....	206

\* Does not include Spring Term, 1942-43.

† Data from January 1, 1942, to January 1, 1943.

6. North Carolina Industrial Institute.....	84	
7. Industrial Plant Protection School, Greensboro....	103	
8. Electrical Contractors .....	75	
9. Institute for Gas Plant Operators.....	76	
	<hr/>	
Total .....	4,047	
Grand Total .....		8,791

### ENROLLMENT BY CURRICULA

Basic Division		Division of Teacher Education	
Agriculture .....	249	Agricultural Education .....	53
Engineering .....	1,228	Industrial Arts Education ...	8
Teacher Education .....	83	Occup. Inf. and Guidance ....	7
Textiles .....	200		
	<hr/>		<hr/>
Total .....	1,760	Total .....	68
<b>School of Agriculture and Forestry</b>		<b>School of Textiles</b>	
Agricultural Options .....	145	Textile Chemistry and Dyeing	22
Agricultural Chemistry .....	12	Textile Management .....	22
Agricultural Engineering ....	1	Textile Manufacturing .....	45
Forestry .....	24	Weaving and Designing .....	10
Landscape Architecture .....	1	Yarn Manufacturing .....	2
Wildlife Cons. and Mgt.....	4		
	<hr/>		<hr/>
Total .....	187	Total .....	101
<b>School of Engineering</b>		<b>Nonclassified Auditors and Special Students</b>	
Aeronautical .....	64		14
Architectural .....	12		
Architecture .....	7		
Ceramic .....	18		
Chemical .....	88		
Civil .....	21		
Civil-Construction Option ...	13		
Civil-Highway Option .....	4		
Civil-Sanitary Option .....	1		
Electrical .....	62		
General .....	16		
Geological .....	1		
Industrial .....	12		
Mechanical .....	73		
	<hr/>		<hr/>
Total .....	392		
		<b>Distribution of Graduate students by schools (included in above departmental classifications).</b>	
		Agriculture .....	37
		Engineering .....	7
		Teacher Education .....	6
		Total .....	50

# FIFTY-THIRD ANNUAL COMMENCEMENT

JUNE 8, 1942

## DEGREES CONFERRED

### SCHOOL OF AGRICULTURE AND FORESTRY

#### BACHELOR OF SCIENCE

##### IN AGRICULTURAL CHEMISTRY

Julian Brewer Culvern ..... Camden, S. C.

##### IN AGRICULTURAL ENGINEERING

\*Clarence Kay Beeman ..... Raleigh

##### IN AGRONOMY (FIELD CROPS)

Frederick Jerome Bowers ..... Jackson  
Maxwell Powell Chesnutt ..... Turkey  
Isaac Hall Hanff ..... Scotland Neck  
Stirling Norman Hawks, Jr. .... Norlina  
Joseph Newman Honeycutt ..... Varina  
Richard David House, Jr. .... Scotland Neck  
Horace Carter Hurst, Jr. .... Franklin  
Van Hugh Johnson ..... Kernersville  
Charles Ellington Kearns, Jr. .... Asheboro  
\*Robert Rowe McNeely ..... Cleveland  
Fred Eaves Miller, Jr. .... Raleigh  
John Frederick Nash, Jr. .... St. Pauls  
Fred Whitaker Newton ..... Henderson  
\*Robert James Pleasants ..... Cary  
Neal Washington Seegars, Jr. .... Fairfield  
Herbert Monroe Speas ..... Winston-Salem  
Harold George Taylor ..... Seaboard  
\*Hubert McAulley Willis ..... Elizabethtown

##### IN AGRONOMY (SOILS)

Henry Clay Ferebee, Jr. .... Camden  
Raphael Spenser Moss ..... New York, N. Y.  
John Jay Wilfong ..... Newton

##### IN ANIMAL PRODUCTION

Philip Shuford Avery ..... Morganton  
Daniel Wadsworth Brady ..... Carthage

\* Honors.

\*\* High Honors.

*David Wiggs Harris .....	Newell
Melvin Herman Hearn .....	Laurinburg
*Alfred Wiley Huff .....	Mars Hill
Robert E. McDowell, Jr. ....	Charlotte
Glenn Cecil Palmer, Jr. ....	Clyde
Joseph Hardy Palmer .....	Clyde
Quentin Washington Patterson .....	Hiddenite
Woodrow Cecil Richardson .....	Sparta
Charles Siler Slagle, Jr. ....	Franklin
*Benjamin Franklin Spencer .....	Scranton
Romulus Sanders Watson, Jr. ....	Columbia, S. C.
Jack Owen Whitaker .....	Horse Shoe
Carl Whiteside .....	Rutherfordton

## IN DAIRY MANUFACTURING

*Herbert Henry Cobb .....	Wadesboro
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## IN ENTOMOLOGY

Edward Brownstein .....	New Haven, Conn.
Ben Lubin .....	Newark, N. J.

## IN FARM BUSINESS ADMINISTRATION

**Charles Brice Ratchford .....	Gastonia
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## IN FARM MARKETING AND FARM FINANCE

**Marvin Jones Clay .....	Hester
Hugh Roland Hinton, Jr. ....	Sharpsburg
Carl Cloyce Scott, Jr. ....	Mars Hill
Hubert Cox Scott .....	Kenly

## IN FLORICULTURE

Frederick Harling Schmidt .....	Raleigh
*Jacob Hinnes Tinga .....	Castle Hayne

## IN FORESTRY

William Archibald Bland .....	Boydton, Va.
Bill Lee Cook .....	Kinston
William Alexander Crombie .....	Delair, N. J.
*Ross Swarens Douglass .....	Hendersonville
Paul Gawkowski .....	New York, N. Y.
James Ewell Hobbs .....	Edenton

\* Honors.

\*\* High Honors.

Julian George Hofmann .....	Raleigh
George Milton Howe .....	Elizabeth, N. J.
**Albert Edwin Johnson .....	Cementon, N. Y.
Hyman Seymour Katz .....	Middletown, N. Y.
Robert Henry Landon .....	Drexel Hill, Pa.
Elwin Frederick Leysath .....	Springfield, Vt.
Harry Smith Muller, Jr. ....	Aberdeen, Md.
*Austin Agnew Pruitt .....	Carteret, N. J.
Frank Anthony Santopolo .....	Mt. Vernon, N. Y.
*John Thomas Thurner .....	Memphis, Tenn.
Frank Draughn Williams .....	Rocky Mount

### IN LANDSCAPE ARCHITECTURE

Frank Lester Little, Jr. ....	Ayden
Wendall Lane Winn .....	Norfolk, Va.

### IN PLANT PATHOLOGY

Philip Oransky .....	Bronx, N. Y.
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### IN POMOLOGY

William Walter Lentz, Jr. ....	High Point
*William Dudley Robbins .....	Burgaw

### IN POULTRY SCIENCE

Fleet Devotion Allen .....	Marshville
Walter Gibson Wofford .....	Hartsville, S. C.

### IN VEGETABLE GARDENING

Albert Alex Banadyga .....	Burgaw
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## SCHOOL OF ENGINEERING

### BACHELOR OF AERONAUTICAL ENGINEERING

*William Sumpter Johnson, Jr. ....	Charlotte
Ollie Carmer Worsley, Jr. ....	Charlotte

### BACHELOR OF ARCHITECTURAL ENGINEERING

**James L. Beam, Jr. ....	Cherryville
Margery Belle Garriss .....	Morehead City
William Barwick Griffin .....	Raleigh

\* Honors.

\*\* High Honors.



*Charles Austin Kendall .....	Greensboro
William Aderholdt Quickel .....	Lincolnton
Richard Sharp Smith .....	Asheville

## BACHELOR OF CERAMIC ENGINEERING

Robert Braxton Adair .....	Beaufort
Ernest Charles Hepler, Jr. ....	Greensboro
*Howard Lee Miller .....	Mooresville
Benjamin Edwin Paschal, Jr. ....	Charlotte
Percy Pickett Turner, Jr. ....	Greensboro

## BACHELOR OF CHEMICAL ENGINEERING

*William Edward Angelo .....	Winston-Salem
*Rodger Milner Avery, Jr. ....	Winston-Salem
Howard Leland Bowman .....	Hickory
*James Roscoe Branscome .....	Galax, Va.
William Paige Bryan .....	Marshall
**Edward Lawrence Bryant .....	Wilmington
James Frederick Burgess .....	Pleasant Garden
**Lewis Eicleberger Caldwell .....	Campobello, S. C.
*Milford Francis Cohen .....	Waltham, Mass.
*Frank Colenda .....	Morehead City
Robert Wade Collier .....	Fayetteville
Arthur Hamilton Fuller, Jr. ....	Gastonia
*Eric Gregg Gibbs .....	Morehead City
Albert Roland Hicks, III .....	Faison
Isaac Alexander Hobbs .....	Wilmington
*Lawson Jerome Ingram .....	High Point
William Herbert Johnson, Jr. ....	Asheville
Robert Loeb Karesh .....	Charlotte
Junius Clyde Kelly, Jr. ....	Greensboro
Harold Bishop Ketchum, Jr. ....	Mt. Holly
George Douglas Kilgo .....	Asheville
James Kyle Kingsolver .....	Hickory
Robert Albert Lewis .....	Raleigh
Richard Wilber McKay .....	Warren, Ohio
John Alexandria Macon .....	Wake Forest
*Melvin Dewitt Martin .....	Liberty
Allen Lindsay Midyette, Jr. ....	Swan Quarter
Charles Tuttle Morrison .....	Hickory
Charles Frederick Nichols .....	Waynesville
*Joseph Robert Nixon, Jr. ....	Lincolnton
*James Virgil Parker, Jr. ....	Asheville
John Sanders Pearsall .....	Rocky Point
Joseph Howell Peele .....	Belhaven

\* Honors.

\*\* High Honors.

Winston James Roberts .....	Monroe
Charles Sanford Ruark .....	Wilmington
James Franklin Smith .....	Avondale
James Milton Sturkey .....	Albemarle
William Berry Thompson, Jr. ....	<i>Goldsboro</i>
Charles Dwyer Umberger .....	Mt. Ulla
**David Samuel Weaver, Jr. ....	Raleigh
Frank Dixon Weaver, Jr. ....	Wilmington
Thomas McDowell Williams .....	Raleigh
Colvin McAlister Worth .....	Raleigh

### BACHELOR OF CIVIL ENGINEERING

James Franklin Carney .....	Emporia, Va.
**James David Dodge .....	Asheville
Edward Paul Hamby .....	Salisbury
*Thomas William Lambe .....	Raleigh
Willard Joseph LaMorte .....	Bronxville, N. Y.
Robert Hartwell Livermon .....	Charlotte
Edward Carter McMillan .....	Marion
Lewis Payne Orr .....	Washington
Roy Lee Reed .....	Hertford
James McCree Smith .....	Raleigh
Sherrod Parker Wells .....	Rocky Mount
Lonnie Crump Williams, Jr. ....	Salisbury

### BACHELOR OF CIVIL ENGINEERING, CONSTRUCTION OPTION

Francis Martin Beam .....	Ellenboro
Stanley Goldman .....	Brooklyn, N. Y.
*Robert Erwin Porter .....	Charlotte
Paul Eli Stout .....	High Point
David Lindsay Struthers .....	Wilmington
Alvin Edward Witten .....	Gastonia

### BACHELOR OF CIVIL ENGINEERING, HIGHWAY OPTION

George Sutton Atkinson, Jr. ....	Fayetteville
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### BACHELOR OF CIVIL ENGINEERING, SANITARY OPTION

John Giles Foushee .....	Greensboro
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\* Honors.

\*\* High Honors.

## BACHELOR OF ELECTRICAL ENGINEERING

*Robert Emerson Ankers, Jr.	Falls Church, Va.
*William Hulon Blue	Carthage
James Franklin Calfee	Belhaven
Bernard Gray Camp	Ahoskie
John Franklin Campbell	Wagram
Wallace Gordon Cooper	Climax
Lewis Bechtler Davis	Shelby
*Robert Bickett Hinson	Monroe
Jesse R. Holshouser, Jr.	Greensboro
Clarence Branning Johnson, Jr.	Rocky Mount
Evert Johnson Levin	Mt. Iron, Minn.
James Shepard Milliken, Jr.	Southern Pines
Panayoti Phrydas	Greensboro
Robert Strain Risley	Raleigh
William Guy Seyter	Union City, N. J.
Loy Hewitt Spargo, Jr.	Charlotte
Benjamin Franklin Spencer	Ayden
Henry Vernon Strand	Norge, Va.
James Warren Tolbert	Collettsville
William Sidney Wilson	Yanceyville
*Edward Franklin Wooten	Wilson
*George Gibbs Young	Swannanoa

## BACHELOR OF SCIENCE IN GENERAL ENGINEERING

Hugh Cowan Cameron	Oxford
Thomas Ingalls Gray	Washington, D. C.
*Edward Bryant Luke	Goldsboro
David Leonidas Middleton	Raleigh

## BACHELOR OF GEOLOGICAL ENGINEERING

Mason Kirk Banks	Greensboro
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## BACHELOR OF INDUSTRIAL ENGINEERING

Ray Algram Boyette	Kenly
William Albert Brown, Jr.	Wilmington
Wilbur Earl Bryant	Wilmington
William Everette Carter	Raleigh
Frank Edward Covington, Jr.	Wadesboro
Francis Clarke Cunningham	Raleigh
*Robert Bunker Dulaney	Ellwood City, Pa.
*William Conway Hall	Asheville
Edgar LeRoy Lindsey	Draper
*John Friend Nicholson	Raleigh

\* Honors.

\*\* High Honors.

## BACHELOR OF MECHANICAL ENGINEERING

Paul Gates Baker	Verona, N. J.
Joseph Glenn Blow	Vanceboro
*Howard Woodbridge Andrews Derlin	Moorestown, N. J.
Nelson Barrier Fisher	Vanceburg, Ky.
*David Jerome Hanse	Babylon, N. Y.
Henry Arthur Kluttz	Raleigh
William Robert Knight, Jr.	Brooklyn, N. Y.
Thomas Benson Ledbetter	Rockingham
William Lee Leonard, Jr.	Raleigh
Earl Tyedrew Light	Haddonfield, N. J.
John King Nelms	Oxford
Alfred Mason Rhyne	Stanley
Charles Wayman Sasser	Wilson
James Beverly Sibert	Winston-Salem
*John Robert Truitt	Greensboro
Joseph Edward White, Jr.	Oak Hill, W. Va.

## BACHELOR OF MECHANICAL ENGINEERING,

## AERONAUTICAL OPTION

**Joel Hill Bower	Lexington
Darden Haywood Bradshaw, Jr.	Norfolk, Va.
Leonard Alden Constant	Grafton, Mass.
Andrew Dulaney Ennett, Jr.	Swansboro
Edward Hudson Kemper	Shelby
*Addison Woollen McNairy	Greensboro
*Abraham Michaels	Brooklyn, N. Y.
James Baldwin Swett, Jr.	Southern Pines
John Robert Weaver, Jr.	Hickory

## BACHELOR OF MECHANICAL ENGINEERING,

## HEATING AND AIR CONDITIONING OPTION

Louis Marion Fendt, Jr.	Jacksonville, Fla.
Harry Vann Latham, Jr.	Belhaven
Nevada Koonce Lee, Jr.	Hampton, Va.
*Kenneth Lamar Wommack	Winston-Salem

\* Honors.

\*\* High Honors.

## DIVISION OF TEACHER EDUCATION

## BACHELOR OF SCIENCE

## IN AGRICULTURAL EDUCATION

Radford Reed Allen	Council
Franklin Earl Auman	West End
William Ralph Austin	Peachland
Thomas Clarke Baucom	Polkton
George Nathaniel Blevins	Bakersville
Cletus Marvin Bost	Rockwell
George Rankin Coble	Greensboro
Willis Van Cornelius	Conover
Arthur Franklin Dalton	Etowah
*Marquis Davis, Jr.	Verona
*George Brantley DeLoatche	Conway
George Basil Dixon	Kings Mountain
Roy Lance Fornes	Hemp
James Allen Graham	Cleveland
Robert Alexander Haislip, Jr.	Oak City
Charles Raymond Hill	Pilot Mountain
Vernon Wiggins Hill	Youngsville
Allen Nathen Honbarrier	Salisbury
John Enoch Johnson	Wallace
Moses Lingle Kluttz	Salisbury
*James Elbert Lamm	Youngsville
Joseph Edwin Leagans	Cana
William Dawson Lewis	Fairmont
William Edward Little	Grimesland
John Daniel Love	Stanfield
Charles Kennett McAdams	Mebane
Charles Barrett Padgett	Ellenboro
John Hinton Parker	Clinton
Donald Edward Propst	Belwood
Graham Ernest Reams	Apex
Paul Remer Regan	Lexington
David Richard Reynolds	Jamestown
Rowland Gaye Riddick	Corapeake
C. W. Tarleton	Marshville
Carl Victor Tart	Dunn
William Jerome Thrailkill	Apex
Robert Carl Vause	LaGrange
Robert Decator Warlick	Lawndale
*Gradie Joseph Wheeler	Louisburg
Sam DeLee Whitley	Matthews
James Marion Wilburn, Jr.	Raleigh
Richard Franklin Zehner	Reading, Pa.

\* Honors.

\*\* High Honors.

## IN INDUSTRIAL ARTS EDUCATION

Joe Macon Beasley .....	Louisburg
**Julian Augustus Bell .....	Newport

## SCHOOL OF TEXTILES

## BACHELOR OF SCIENCE

## IN TEXTILE CHEMISTRY AND DYEING

George Brandt .....	Greensboro
*Thomas Porter Caldwell .....	Charlotte
Ye-Sun Coln Ding .....	New York, N. Y.
George William Funderburk, Jr. ....	LaGrange, Ga.
Robert Joseph Granger .....	Charlotte
Harry Glover Hodges, Jr. ....	Wadesboro
Robert Clifton Leak .....	Terre Haute, Ind.
William Simpson Pearson .....	Charlotte
Thomas Joseph Sarandria .....	W. New York, N. J.
*George Reece Sedberry, Jr. ....	Concord
*Carl Diedrich Sickerott .....	Siler City
Lonnie Lee Trexler .....	Asheville
Boyd Franklin Vaughan .....	Raleigh

## IN TEXTILE MANAGEMENT

Edward Graham Coward .....	Ayden
George Benjamin Dewey .....	Pulaski, Va.
Arnold William Kattermann, Jr. ....	Paterson, N. J.
John Joseph McAulay .....	Mt. Gilead
Frank Alvin Owens, Jr. ....	Charlotte
Rupert Riley .....	Raleigh
Jesse Alton Webb .....	Mt. Airy
Norman Kendall Wiggin .....	Springfield, Pa.
Willie Stevenson Williams, Jr. ....	Middlesex

## IN TEXTILE MANUFACTURING

*George Henry Barrier .....	Mt. Pleasant
William Ernest Beaver, Jr. ....	Salisbury
Sidney Morton Berman .....	Baltimore, Md.
Andrew Long Blackwelder .....	Hickory
John Fred Blue .....	Carthage
David Oscar Feldmann .....	Baltimore, Md.
Jean Wall Folley .....	Aberdeen

\* Honors.

\*\* High Honors.

Woodie Butler Hilburn, Jr.	Bladenboro
John Daniel Huckabee	Charlotte
Robert Stephen Jackson	Ontario, Canada
Alexander Long James	Washington, D. C.
*William Fain LeGrand	Shelby
Wendell Holmes Leonard	Lexington
George Hoffman Mauney	Kings Mountain
Patrick Henry Morgan	Shawboro
Reuben Thomas Morgan	Raleigh
John Harmon Strait	Columbia, S. C.
Roscoe Conkling Strickland	Nashville
*Waldo Trescott	Raleigh

### IN WEAVING AND DESIGNING

Paul Green Adams	Greensboro
Robert Herron Cathey	Charlotte
Hans Wilhelm Frei	New York, N. Y.
Marion Elmer Herndon, Jr.	Charlotte
Robert Limber McLaughlin	Pittsburgh, Pa.
Hollowell Cox Nixon	Hertford
Kenneth Abner Shinn, Jr.	China Grove
Wallace McClellan Sutton	Rocky Mount
Richard Harold Watts, Jr.	Baldwin, L. I., N. Y.
Nai-Zer Yao	Shanghai, China

### ADVANCED DEGREES

#### MASTER OF SCIENCE

#### IN AGRICULTURAL CHEMISTRY

Ernest Aubrey Bailey, Jr.	LaGrange, Ga.
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#### IN AGRONOMY (SOILS)

Beal David Hargrove	Raleigh
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#### IN BACTERIOLOGY

Albert Kelner	Philadelphia, Pa.
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#### IN BOTANY

Bernard Francis Volkerding	Ada, Minn.
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\* Honors.

\*\* High Honors.

## IN PLANT PATHOLOGY

Robert Aycock .....	Lisbon, La.
Robert Sidney Cox .....	Kinta, Okla.

## IN POMOLOGY

Clarence Harold Steelman, Jr. ....	Kingston, N. J.
------------------------------------	-----------------

## IN CIVIL ENGINEERING, SANITARY OPTION

Robert Feaster Coleman, Jr. ....	Wilmington
----------------------------------	------------

## IN TEXTILE CHEMISTRY AND DYEING

Dan Moss .....	Sugar Valley, Ga.
Charles Kenneth Watson .....	Red Springs

## IN TEXTILE MANUFACTURING

Omer Sakir Ataman .....	Izmir, Turkey
George Redin Culberson .....	Raleigh
Yang-Zung Yung .....	Shanghai, China

## MASTER OF POULTRY SCIENCE

Wright Fletcher Parker .....	Gibson
------------------------------	--------

## MASTER OF CHEMICAL ENGINEERING

Calvin LaFayette Dickinson .....	Wilmington
----------------------------------	------------

MASTER OF CIVIL ENGINEERING,  
CONSTRUCTION OPTION

Millard Samuel Hayworth .....	Asheboro
-------------------------------	----------

## MASTER OF ELECTRICAL ENGINEERING

William Thomas Hunt, Jr. ....	Apex
John Hervey Nichols .....	Earl

## MASTER OF INDUSTRIAL EDUCATION

George Sylvester Willard, Jr. ....	Wilson
------------------------------------	--------

## PROFESSIONAL DEGREE

## CIVIL ENGINEER

Thomas Glenn Murdock .....	Raleigh
----------------------------	---------

## HONORARY DEGREE

## DOCTOR OF SCIENCE

Carle Clark Zimmerman .....	Cambridge, Mass.
-----------------------------	------------------



MEDALS AND PRIZES

SCHOLARSHIP DAY AND COMMENCEMENT, 1942

ETA KAPPA NU AWARD

(Electrical Engineering)

Henry Gilmore, Jr., Sophomore in Electrical Engineering,  
Fairhaven, Mass.

GAMMA SIGMA EPSILON SCHOLARSHIP CUP

(Chemistry)

Max Sayah, Junior in Chemical Engineering,  
Allentown, Pa.

SIGMA PI ALPHA AWARD

(Language)

Theron Eugene Burts, Jr., Benjamin Wayne Greene,  
John Thomas Thurner, Joel Hill Bower, Charles A. Kendall,  
Turner Garwood Williams

ASSOCIATED GENERAL CONTRACTORS' AWARD

(Civil Engineering)

Robert E. Porter, Senior in Civil Engineering, Construction Option,  
Charlotte, N. C.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERING AWARD

Max Sayah, Junior in Chemical Engineering,  
Allentown, Pa.

MU BETA PSI AWARDS (MUSICAL)

CUP

Rodger M. Avery, Jr., Senior in Chemical Engineering,  
Winston-Salem, N. C.

KEYS

R. M. Avery, Jr., W. F. Oetgen, R. E. Porter, C. Scott Sullivan,  
Waldo Trescott, J. R. Truitt, Richard Zehner

ORDER OF 30 AND 3 AWARD

(Sophomore Leadership)

Vernon Meredith Barnes, Jr., Freshman in Electrical Engineering,  
Wilson, N. C.

## CERAMIC AWARDS

J. C. STEELE SCHOLARSHIP CUP  
(Upperclassman)

Edwin D. Cox, Sophomore, Ceramic Engineering,  
Charlotte, N. C.

MOLAND-DRYSDALE SCHOLARSHIP CUP  
(Freshman)

William B. Midgette, Freshman in Ceramic Engineering,  
Raleigh, N. C.

## TEXTILE AWARDS

NATIONAL ASSOCIATION OF COTTON MANUFACTURERS' MEDAL  
G. H. Barrier, Senior in Textile Manufacturing,  
Mount Pleasant, N. C.

## SIGMA TAU SIGMA AWARD

G. R. Sedberry, Jr., Senior in Textile Chemistry and Dyeing,  
Concord, N. C.

## PHI PSI KEY

O. Max Gardner, Jr., Sophomore in Textiles,  
Shelby, N. C.

## TOMPKINS TEXTILE SOCIETY KEY AWARDS

G. Reece Sedberry, Jr., Kenneth A. Shinn, Jr., Wallace M. Sutton,  
W. F. LeGrand, R. L. McLaughlin, H. C. Nixon,  
Dean Thomas Nelson (Honorary)

TAU BETA PI AWARDS (ENGINEERING)  
CUP

B. W. Greene, Sophomore in Mechanical Engineering,  
Elizabethtown, N. C.

## SLIDE RULE

V. M. Barnes, Jr., Freshman, Electrical Engineering,  
Wilson, N. C.

## ALPHA ZETA SCHOLARSHIP CUP

Harry Lee Jordan, Sophomore in Agriculture,  
Clarkton, N. C.

INTERFRATERNITY SCHOLARSHIP CUP

Alpha Gamma Rho Fraternity

ALUMNI ATHLETIC TROPHY

G. Woodrow Jones, Sophomore in Industrial Arts Education,  
Roxboro, N. C.

PHI KAPPA PHI MEDALS

SENIOR AWARD

M. J. Clay, Senior in Agriculture,  
Hester, N. C.

JUNIOR AWARD

Max Sayah, Junior in Chemical Engineering,  
Allentown, Pa.

SOPHOMORE AWARD

B. W. Greene, Sophomore in Mechanical Engineering,  
Elizabethtown, N. C.

GRADUATE SCHOLARSHIP

Albert Kelner, Graduate in Bacteriology,  
Philadelphia, Pa.

KAPPA PHI KAPPA AWARD

(Education)

H. M. Stein, Sophomore in Agricultural Education,  
Newark, N. J.

XI SIGMA PI AWARD

(Forestry)

A. E. Johnson, Senior in Forestry,  
Cementon, N. Y.

INTER-HONOR COUNCIL AWARD

Golden Chain, G. Reece Sedberry, Jr., President

THE ELDER P. D. GOLD CITIZENSHIP MEDAL

G. Reece Sedberry, Jr., Senior in Textiles,  
Concord, N. C.

## DEGREES CONFERRED SEPTEMBER, 1942

## BACHELOR OF SCIENCE

## IN AGRICULTURAL CHEMISTRY

Anderson Moore Oldham .....	Durham
-----------------------------	--------

## IN AGRONOMY (FIELD CROPS)

William Hundley Hoyle .....	Henderson
George William Wilson, Jr. ....	Danville, Va.

## IN ANIMAL PRODUCTION

George Mark Goforth, Jr. ....	Lenoir
Clawson Alexander Wilder .....	Carthage

## IN POMOLOGY

Arnold Krochmal .....	Bronx, N. Y.
-----------------------	--------------

## BACHELOR OF AERONAUTICAL ENGINEERING

Edwin Braxton Owens .....	Black Creek
---------------------------	-------------

## BACHELOR OF CERAMIC ENGINEERING

Charles David Taylor .....	Portsmouth, Ohio
----------------------------	------------------

## BACHELOR OF CHEMICAL ENGINEERING

Silas Edward Carroll, Jr. ....	Raleigh
John Thomas Rose, Jr. ....	Rocky Mount
Richard Robertson Saunders, Jr. ....	Reidsville
Charles Willard Whittington .....	Snow Hill

## BACHELOR OF CIVIL ENGINEERING

Roland Francis Duncan .....	Dunn
Pasquale Paul Ingrisano .....	Brooklyn, N. Y.

BACHELOR OF CIVIL ENGINEERING,  
CONSTRUCTION OPTION

Harry Gordon Heath .....	Statesville
--------------------------	-------------

## BACHELOR OF ELECTRICAL ENGINEERING

Wade Vance Baise, Jr. ....	Raleigh
----------------------------	---------

## BACHELOR OF GEOLOGICAL ENGINEERING

Roy Howard Boone ..... Spruce Pine

## BACHELOR OF INDUSTRIAL ENGINEERING

James Sheridan Gray ..... Elkin  
 William Edward Leloudis ..... Rocky Mount  
 Edward Fitzgerald Parnell, Jr. .... Charlotte

## BACHELOR OF MECHANICAL ENGINEERING

William Eugene Jordan, Jr. .... Charlotte  
 Robert Berry Stevens, Jr. .... Camden  
 George Vincent Straythorne ..... Spencer

BACHELOR OF MECHANICAL ENGINEERING,  
AERONAUTICAL OPTION

Ernest Harris Curtis ..... Greensboro

## BACHELOR OF SCIENCE

## IN AGRICULTURAL EDUCATION

William Cox Shaw ..... Richlands

## IN INDUSTRIAL ARTS EDUCATION

Robert Frederick Elliott ..... Rich Square

## IN TEXTILE CHEMISTRY AND DYEING

Hobart Garland Ferree, Jr. .... High Point  
 Gene Woodall McGarity ..... Charlotte

## IN TEXTILE MANAGEMENT

Milo Lemert Gibbs ..... Bath  
 Morton Henry Lampport ..... New York, N. Y.

## IN TEXTILE MANUFACTURING

John Allen Arey, Jr. .... Raleigh  
 James Edgar MacDougall, Jr. .... Charlotte  
 Evan Wilkins Norwood, Jr. .... Beaufort  
 Alfred Henry Pierce ..... Hamilton, Ontario  
 Flay DeWitt Quinn, Jr. .... Shelby  
 Jackson Curtis Tabscott ..... Washington, D. C.

## IN WEAVING AND DESIGNING

Betty Ruth Thompson ..... Raleigh

## ADVANCED DEGREES

## MASTER OF SCIENCE

## IN ANIMAL PRODUCTION

José Antonio Zelaya Sotomayor ..... Lima, Peru

## IN CHEMICAL ENGINEERING

Ye-Sun Coln Ding ..... New York, N. Y.

Samuel McIver Watson, Jr. .... Sanford

## MASTER OF AGRICULTURAL EDUCATION

Everett Kermit Veach ..... Scotland Neck

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**FACULTY, STAFF, and STUDENTS**  
**OF**  
**NORTH CAROLINA STATE COLLEGE OF**  
**AGRICULTURE AND ENGINEERING**  
**OF THE**  
**UNIVERSITY OF NORTH CAROLINA**

**1942-1943**

**State College Station**  
**Raleigh**



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L. F. Williams

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Williams Newton  
R. H. Ruffner

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G. H. Satterfield  
R. L. Stone  
J. L. Stuckey  
B. W. Wells

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R. D. Boyce  
R. W. Dalrymple  
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D. B. Finn  
O. Max Gardner, Jr.  
Addison Hawley, Jr.  
George Woodrow Jones  
J. D. Martin  
Robert E. Pomeranz  
J. H. Stockard, Jr.  
Walton Thompson  
T. M. Turner  
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W. N. Hicks  
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Raymond Marks  
J. T. Maynard  
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Max Sayah  
E. T. Sullivan  
W. M. Upchurch, Jr.  
W. B. Whitehurst

# FACULTY DIRECTORY

7

## STUDENT WELFARE

A. C. Campbell

J. D. Clark

C. G. Mumford

J. L. Stuckey

(4 vacancies to be filled by

General Faculty)

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.....

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## *Student Members*

W. D. Barksdale

R. D. Boyce

Percy Collins

R. W. Dalrymple

Eugene Dawson

Albert Foster

Dennis Loftin

Archie Sink

## TRAFFIC

W. F. Morris, Chairman

J. P. Pillsbury, Secretary

J. W. Goodman

W. H. Hoffman

## DORMITORY TELEPHONES

<i>Location</i>	<i>2-2853 Extension</i>
Alexander: 1st floor .....	17
2nd floor .....	18
3rd floor .....	19
Bagwell: 1st floor .....	9
2nd floor .....	10
3rd floor .....	11
Becton: Basement .....	23
1st floor .....	12
2nd floor .....	13
3rd floor .....	14
Berry .....	15
Clark .....	16
Fourth .....	6
Gold .....	7
Syme: 1st floor .....	1
2nd floor .....	2
3rd floor .....	3
Turlington: 1st floor .....	20
2nd floor .....	21
3rd floor .....	22
Watauga: 1st floor .....	4
3rd floor .....	5
Welch .....	8
1911 .....	23
R. L. Overcash .....	24

### *Operating Schedule:*

Monday through Friday: 12 Noon to 11 P.M.

Saturday and Sunday: 12 Noon to 4:00 P.M.; and 6:00 to 10:00 P.M.

### *Incoming Calls:*

Dial 2-2853. When operator answers, give the extension or floor and dormitory desired.

### *Inter-Dormitory Calls:*

Give operator dormitory and floor desired.

*Note:* The dormitory switchboard is separate from the regular College board. To call from a College extension it will be necessary to dial Out-side 2-2853.

# DORMITORY ASSISTANTS

1942-1943

R. L. OVERCASH, Chief Assistant

107 Berry, Box 5172

OFFICE HOURS: 8-10 P.M.

	<i>Room</i>	<i>Name of Counselor</i>
Alexander:	117	Carrol Martin
	217	C. B. Coble
	317	Mack T. Miller
	Trunk Room:	C. W. Ballard
	120	H. T. Moser
Bagwell:	111	R. T. Troxler
	125	M. J. Andrews
	211	R. O. Howard
	225	D. B. Finn
	311	M. B. Dunn
	325	F. S. Boyer
Becton:	9	L. C. Laney
	23	H. L. Trentham
	109	Thorne Reynolds
	126	W. A. Lane
	209	M. L. Stilwell
	226	A. E. Gibson
	309	S. D. Kornegay
	326	R. W. Dalrymple
Berry:	5	John L. Rhyne
	206	Ray Benbenek
	306	Rufus McNair
Clark:	109	R. D. Boyce
	209	S. H. Huffstetler
	Trunk Room:	J. C. Caton
	102	T. L. Riddle
Fourth:	208	W. L. Clevenger
Gold:	201	H. E. Beam
Syme:	22	Marvin P. Young
	116	Addison Hawley
	216	W. L. Corbin
	316	J. D. Martin
Turlington:	117	John B. Wagoner
	217	H. Y. Simerson
	317	B. L. Young
	Trunk Room:	G. W. Allen
	123	W. D. Moser
Watauga:	103	I. J. Hetherington
	203	G. W. Jones
	203	James A. Allen
Welch:	201	Collin McKinne

## COLLEGE TELEPHONES

Agriculturist	2-3370
Agromeck	9909
Dining Hall	2-0243
Fieldhouse	6934
Infirmery	7615
Southern Engineer	2-3370
Student Government	8738
Technician	4732
Von Glahn, J. L.	2-2407
Wataugan	2-3370
Y. M. C. A.	7184

## FRATERNITY ROSTER

1942-1943

<i>Organization</i>	<i>Address</i>	<i>Telephone</i>
Alpha Gamma Rho (Nat'l)	116 Forest Road	3-1812
Alpha Kappa Pi (Nat'l)	6 Ferndell Lane	4035
Alpha Lambda Tau (Nat'l)	10 Enterprise Street	7016
Chi Sigma (Local)	12 Horne Street	3-1934
Delta Sigma Phi (Nat'l)	2004 Hillsboro Street	2-1873
Kappa Alpha (Nat'l)	2405 Clark Avenue	2-0737
Kappa Sigma (Nat'l)	21 Enterprise Street	2-0232
Lambda Chi Alpha (Nat'l)	2407 Clark Avenue	8218
Phi Kappa Tau (Nat'l)	104 Logan Court	7422
Pi Kappa Alpha (Nat'l)	4 Ferndell Lane	9127
Pi Kappa Phi (Nat'l)	1720 Hillsboro Street	4215
Sigma Alpha Mu (Nat'l)	1304 Hillsboro Street	7638
Sigma Nu (Nat'l)	222 Hillcrest Road	9360
Sigma Phi Epsilon (Nat'l)	103 Chamberlain Street	4843
Sigma Pi (Nat'l)	2513 Clark Avenue	2-0268

# FACULTY DIRECTORY

1942-1943

- Abrams, Virginia B.—Secty., Teach. Ed. 103 Tompkins. Ext. 257.  
Residence: 721 N. Bloodworth St. Telephone 2-0183.
- \*Adams, A. H.—Clerk, Central Stores. Warehouse. Ext. 272.  
Residence: Clayton. Telephone 2751.
- Adams, Hazel C.—Secty., Hort. 304 Polk. Ext. 275 and 318.  
Residence: 2602 Clark Ave. Telephone 8221.
- \*Adams, W. E.—Asst. Prof. Draw., M.E. 206 Page. Ext. 247.  
Residence: 3413½ Hillsboro St. Telephone 2-1393.
- \*Adams, W. H.—Asst. Sup. Sgt., Mil. Dept. Armory. Ext. 232.  
Residence: Z-2-A Cameron Court Apts.
- Agricultural Adjustment Administration. West Dining. Telephone 2-0544.  
E. Y. Floyd, State Executive Officer In Charge.
- \*Alford, A. O.—Mgr., Col. Print Shop. 13 Tompkins. Ext. 281.  
Residence: 1904½ Hillsboro. Telephone 2-1422.
- \*Allen, L. W.—Foreman, Service Dept. Warehouse. Ext. 272.  
Residence: RFD 5, Raleigh. Telephone 2-3845.
- Allen, Rosa L. (Mrs.)—Stenog., Ext. Serv. 309 1911. Ext. 292.  
Residence: 307 W. Park Dr. Telephone 9961.
- \*Allen, Ruth C. (Mrs.)—Instr., Eng. 5 Pullen. Ext. 237.  
Residence: Royland Wood. Telephone 9685.
- \*Altman, L. B.—Dist. Agent, Ag. Ext. 103 Ricks. Ext. 212.  
Residence: 121 Cowper Dr. Telephone 2-3204.
- \*Ammerman, J. P., Jr.—Herdsman, A. H. 215 Polk. Ext. 276.  
Residence: A. H. Farm.
- \*Anderson, D. B.—Prof., Bot. 212 Winston. Ext. 267.  
Residence: 906 Brooks Ave. Telephone 2-3061.
- Anderson, R. L.—Stat., Exp. Sta. 334, 1911. Ext. 313.  
Residence: 2707½ Vanderbilt Ave.
- Arant, Anamerle—N. W. Dist. Home Agent, Ag. Ext. 201, 1911. Ext. 285.  
Residence: 1821 Glenwood Ave. Telephone 8089.
- Arey, J. A.—In Charge, Dairy Ext. 102 Polk. Ext. 277.  
Residence: 5 Maiden Lane. Telephone 2-3535.
- \*Armstrong, L. O.—Assoc. Prof., Teach Ed. 117 Tompkins. Ext. 256.  
Residence: 308 Dixie Trail. Telephone 2-0063.
- \*Atkins, Mrs. Rupert E.—Stenog., Ext. Mktg. 124, 1911. Ext. 306.  
Residence: 3021 Eton Rd. Telephone 2-0989.
- \*Atkins, S. W.—Ag. Economist. 107, 1911. Ext. 309.  
Residence: 1312 Filmore St. Telephone 4783.
- \*Babcock, W. F.—Asst. Prof., C. E. 202 C. E. Ext. 303.  
Residence: 1702 Hillsboro St. Telephone 6825.
- \*Badders, Hal—Asst. Supt., Serv. Dept. Power Plant. Ext. 234.  
Residence: 2402 Everett Ave. Telephone 6814.
- Bailey, Janie R.—Secty., Sch. of Engr. 122 C. E. Ext. 216.  
Residence: 854 W. Morgan St. Telephone 2-3840.

- Ballenger, S. T.—Assoc. Prof., M. L. 213 Peele. Ext. 231.  
Residence: 2714 Rosedale Ave. Telephone 9570.
- Barker, Nell—Clerk, Asst. Controller. 106 Holladay. Ext. 278.  
Residence: 1618 Hillsboro St. Telephone 4505.
- \*Barker, W. J.—Asst. Ext. For. 307 Ricks. Ext. 270.  
Residence: 9 Pogue St. Telephone 2-3885.
- Barnes, Mrs. Mamie L.—Warp Drawer. 2nd floor Tex. Ext. 273.  
Residence: 1904½ Hillsboro St. Telephone 2-2567.
- \*Barnes, J. I., Jr.—Account. Voc. Ed. 109 Tompkins. Ext. 311.  
Residence: Clayton. Telephone 2896.
- \*Barnhardt, L. W.—Assoc. Prof., Hist. and Pol. Sci. 102 Peele. Ext. 223.  
Residence: 2502 Stafford. Telephone 8796.
- \*Bauerlein, George—Asst. Prof., Hist. 107 Peele. Ext. 223.  
Residence: 310 Pogue St. Telephone 2-0633.
- \*Baumgarten, W. L.—Asst. Prof., Arch. 309 Daniels. Ext. 250.  
Residence: 2509 Country Club Rd. Telephone 7486.
- \*Baver, L. D.—Director, Ag. Exper. Station. 107 Ricks. Ext. 211.  
Residence: 1902 Stone St. Telephone 2-3741.
- \*Beamon, Naomi F.—Secty., Library. Library. Ext. 259.  
Residence: 5 College Court Apt. Telephone 5673.
- \*Beasley, Mary—Stenog., Hort. 302 Polk. Ext. 275 and 318.  
Residence: 327 Oakwood Ave. Telephone 2-3305.
- Bell, H. P.—Clerk, Exp. Sta. 340. 1911. Ext. 313.  
Residence: 319 Alexander Rd. Box 4192.
- Bender, Selma—Secty., Home Dem., Ag. Ext. 222, 1911. Ext. 242.  
Residence: 224 E. Park Dr. Telephone 4360.
- \*Bennett, L. S.—Geneticist, Agron. 18 Withers. Ext. 263.  
Residence: 114 Park Ave. Apts. Telephone 5303.
- \*Best, Mrs. Wilfred—Sten., Farm Mgt. 303, 1911. Ext. 291.  
Residence: B-1, Wilmont Apts.
- Betts, Grace—Secty., Ag. Ext. 108 Ricks. Ext. 255.  
Residence: 1814 Park Dr. Telephone 2-3698.
- \*Biggs, V. L.—Clerk, Pub. 5 Ricks. Ext. 279.  
Residence: 3208 Merriman Ave. Telephone 5689.
- Billman, E.—Instr., Math. 209 Tompkins. Ext. 226.  
Residence: 2707½ Vanderbilt Ave.
- \*Bishop, Mrs. L. W.—Secty., Y. M. C. A. Y.M.C.A. Ext. 7184.  
Residence: 2900 Hillsboro St. Telephone 2-0402.
- Blair, E. C.—Spec., Agron. Ext. 204 Ricks. Ext. 294.  
Residence: 125 Glenwood Ave. Telephone 2-1388.
- \*Bland, Mrs. G. T.—Secty., Chem. Dept. 108 Withers. Ext. 265.  
Residence: Raleigh Apts. Telephone 2-2227.
- Bledsoe, E. B. (Miss)—Stenog., E. E. 201 Daniels. Ext. 236.  
Residence: Brooks Ave. Telephone 2-0688.
- Bledsoe, M. C. M.—Secty., A. H. and Dairy. 115 Polk. Ext. 268.  
Residence: Brooks Ave. Telephone 2-0688.
- \*Blickle, J. D.—Spec., Ag. E. Ext. 312 Ricks. Ext. 274.  
Residence: 2506 Clark. Telephone 7979.
- Boshart, E. W.—Prof., Ind. A. 101 Tompkins. Ext. 258.  
Residence: F1B Cameron Court Apts. Telephone 2-2745.



- \*Bostian, C. H.—Assoc. Prof., Zool. 109 Zoology. Ext. 239.  
Box 5215. Telephone 2-3600.
- \*Bowen, A. F.—Treas. 108 Holladay. Ext. 295.  
Residence: 20 Ferndell Lane. Telephone 5334.
- \*Brady, D. E.—Assoc. Prof., A. H. 217 Polk. Ext. 276.  
Residence: 3205 Bedford Ave. Telephone 2-0820.
- \*Brady, N. C.—Grad. Asst., Agron. 116 Ricks. Ext. 262.  
Residence: 5½ Dixie Trail.
- \*Bragg, Annabelle H.—Secty., Exp. Sta. 340, 1911. Ext. 313.  
Residence: 1615 Hillsboro St. Telephone 7502.
- \*Bragg, F. C.—Instr., M. E. 207 Page. Ext. 302.  
Residence: 1615 Hillsboro St. Telephone 7502.
- Bramer, C. R.—Assoc. Prof., C. E. 209 C. E. Ext. 303.  
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- \*Brantley, V. R.—Instr., Math. 220 Tompkins. Ext. 228.  
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- \*Bridge, Mrs. M. P.—Clerk, Registr. Of. 201 Holladay. Ext. 219.  
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- \*Bridge, M. P.—Tch. Fel., Teach. Ed. 115 Tompkins. Ext. 256.  
Residence: 3220 Bedford Ave. Telephone 2-2091.
- \*Bridges, W. S.—Assoc. Prof., M. E. 105 Page. Ext. 246.  
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- \*Briggs, Hermon B.—Prof., M. E. 206 Page. Ext. 247.  
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- \*Briggs, James E.—Res. Fel., A. H. 216 Polk. Ext. 276.  
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- \*Brigman, Mrs. H. P.—Stat. Clerk, Ag. Ec. 110, 1911. Ext. 309.  
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- \*Brooks, Mrs. J. M.—Night Nurse. Infirmary. Phone 9-7615.  
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Residence: 1520 Carr St. Telephone 8924.
- \*Brown, T. C.—Asst. Prof., M. E. 104 Page. Ext. 246.  
Residence: 910 Canterbury Rd. Telephone 2-3277.

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- Bryan, Rose E.—Home Dem. Agent. 208, 1911. Ext. 285.  
Residence: Durham, N. C. Telephone F-9452.
- Buddin, Laura O.—Lab. and X-Ray Tech., Hospital. Infirmary. Phone 9-7615.  
Residence: Infirmary. Telephone 7615.
- \*Buell, M. F.—Asst. Prof., Bot. 201 Winston. Ext. 267.  
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- Bullard, A. G.—Asst. Sup., R.W.P.T.P. 104 Tompkins. Ext. 257.  
Residence: 2402 Clark Ave. Telephone 2-3849.
- Bullock, R. C.—Assoc. Prof., Math. 218 Tompkins. Ext. 228.  
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Residence: 111 N. Boylan Ave. Telephone 2-0023.
- \*Burkhart, Leland—Agronomist. 6 Withers. Ext. 209.  
Residence: 214 Taylor St. Telephone 3-2320.
- \*Callahan, Mrs. Esta S.—Stenog., Col. Ext., E.S.M.W.T. 201 Library. Ext. 260.  
Residence: 1600 Fairview Rd. Telephone 8067.
- Cameron, K. W.—Instr., Eng. 7 Pullen. Ext. 237.  
Residence: 213 Cox Ave.
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Residence: 302 Hawthorne Rd. Telephone 6849.
- \*Canaday, E. F.—Prof. Math. 201 Tompkins. Ext. 227.  
Residence: 3212 Ruffin St. Telephone 9967.
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Residence: Chapel Hill, N. C. Telephone 4141.
- Carter, Margie R.—Publications. 21 Ricks. Ext. 254.  
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- \*Case, L. I.—Spec., A. H. Ext. 203 Polk. Ext. 269.  
Residence: 1425½ Park Dr. Telephone 2-0198.
- \*Cell, John W.—Assoc. Prof., Math. 218 Tompkins. Ext. 228.  
Residence: 602 Dixie Trail. Telephone 2-2528.
- \*Cell, Mrs. Louise K.—Instr. Eng. 4 Pullen. Ext. 237.  
Residence: 602 Dixie Trail. Telephone 2-2528.
- \*Chalfant, J. W.—Assoc. Prof., For. 303 Ricks. Ext. 270.  
Residence: 1005 Canterbury Rd. Telephone 2-3193.
- \*Charles, G. W.—Instr., Physics. 108 Daniels. Ext. 229.  
Residence: 2501 Everette Ave. Telephone 2-1496.
- \*Clapp, B. S.—1st Lt., U. S. Army, Asst. PMS&T. 2 Holladay. Ext. 233.  
Residence: 3 Hillyer Apts. Telephone 3-2476.

- \*Clark, J. D.—Prof. Eng. 108 Pullen. Ext. 237.  
Residence: 15 Furches St. Telephone 7385.
- \*Clark, Mrs. T. J.—Secty., Psychol. 124 Tompkins. Ext. 286.  
Residence: 2306 Hillsboro St. Telephone 2-1478.
- \*Clarkson, J. M.—Assoc. Prof., Math. 209 Tompkins. Ext. 226.  
Residence: 2705 Barnettler St. Telephone 8762.
- \*Clevenger, Mrs. Reba D.—Ref. Librarian. Library. Ext. 259.  
Residence: 305 Calvin Rd. Telephone 8141.
- Clevenger, W. L.—Spec., A. H. & Dairy. 211 Polk. Ext. 276.  
Residence: 208 Fourth. Telephone 2-2853—6.
- Cline, Georgia—Clerk, Bus. Office. Holladay. Ext. 316.  
Residence: 205 Chamberlain St. Telephone 2-3882.
- \*Cloyd, E. L.—Dean of Students. 100 Holladay. Ext. 215.  
Residence: 2224 Hillsboro St. Telephone 5983.
- Coffey, Christine L.—Catalog Librarian. Library. Ext. 259.  
Residence: Apt. I-1 Grosvenor Gardens.
- \*Coffey, Mrs. Thelma W.—Stenog., Farm Mgt. 306, 1911. Ext. 291.  
Residence: 304 Duncan St. Telephone 3-1824.
- \*Coggin, J. K.—Prof., Tch. Ed. 104 Tompkins. Ext. 257.  
Residence: Cary, N. C. Telephone 2482.
- \*Cole, L. B.—Boarding Dept. Leazer.  
Residence: 528 N. West St. Telephone 2-0243.
- \*Collins, E. R.—Spec. Agron. Ext. 203 Ricks. Ext. 294.  
Residence: 2713 Rosedale Ave. Telephone 9715.
- \*Colwell, W. E.—Assoc. Prof., Agron. 116 Ricks. Ext. 262.  
Residence: 809 West Dr. Telephone 6123.
- Conley, Mabel C.—Stenog., For. 301 Ricks. Ext. 270.  
Residence: 15 Enterprise St. Telephone 8433.
- \*Conner, N. W.—Assoc. Prof., E. M. 101 C. E. Ext. 317.  
Residence: 2719 Bedford Ave. Telephone 4924.
- \*Cook, Leon E.—Prof., Ag. Ed. 118 Tompkins. Ext. 256.  
Residence: 111 Brooks Ave. Telephone 2-1234.
- \*Cooke, Henry C.—Instr., Math. 227 Tompkins. Ext. 228.  
Residence: 2 Logan Court.
- \*Coon, B. F.—Entom., Ext. and Col. 204 Zoology. Ext. 261.  
1624 Bickett Blvd. Telephone 2-3247.
- \*Coor, Mrs. Shirley—Stenog., Ag. Ed. 117, 1911. Ext. 308.  
Residence: 2220 Hillsboro St. Telephone 6058.
- \*Cope, R. L.—Asst. Prof., M. E. Shop. Ext. 245.  
Residence: 2 Logan Court. Telephone 2-2673.
- \*Copley, T. L.—Proj. Supr., Soil Cons. Exp. Sta. 225-228, 1911. Ext. 2-3579.  
Residence: 108 Horne St. Telephone 5956.
- Cox, Gertrude M.—Prof., Exp. Stat. 339, 1911. Ext. 313.  
Residence: 1324 Brooks Ave. Telephone 4731.
- Cox, Gladys—Sec., Dean of Students. 103 Holladay. Ext. 215.  
Residence: 220 N. East St. Telephone 2-2533.
- Cox, Mabel—Cashier, Boarding. Leazer.  
Residence: 120 Groveland Ave. Telephone 5093.
- \*Cox, Paul M.—Machinist, Tex. 3rd Floor Tex. Ext. 287.  
Residence: 13 W. Dixie Dr. Telephone 2-1940.

- Craddock, Anne L.—Secty., Arch. 315 Daniels. Ext. 250.  
Residence: 2306 Hillsboro St. Telephone 2-1478.
- Craig, Ruth—Clerk, Dorm. Dept. Warehouse. Ext. 272.  
Residence: 306 E. Jones St. Telephone 6576.
- \*Crawford, John W.—Prog. Plan., Ext. Ser. 316, 1911. Ext. 292.  
Residence: 3204 Clark Ave. Telephone 5050.
- \*Crothers, Hazel T.—Clerk, Ag. Ext. 108 Ricks. Ext. 255.  
Residence: B-4 Country Club Homes. Telephone 3-1637.
- \*Crowder, W. G.—Poul. Poul. Plant.  
Residence: Poultry Plant. Telephone 8686.
- Crump, Ila Mae—Asst. Nurse. Infirmary. Phone 9-7615.  
Residence: Infirmary. Telephone 7615.
- \*Crumpler, Mrs. B. F.—Secty., M.E. 109 Page. Ext. 246.  
Residence: 2307 Byrd St. Telephone 6796.
- \*Culberson, George R.—Asst. Prof., Tex. 3rd Floor. Ext. 287.  
Residence: 219 Oberlin Road. Telephone 7987.
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Abrams, Murry	3 M. E.	202 Turlington, 4233	Far Rockaway, N. Y.
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Adams, H. B.	2 Ag. Ed.	5 Berry, 4338	Hendersonville, N. C.
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Anderson, H. W.	1 Ag.	3206 Clark Ave.	Franklin, N. C.
Anderson, J. J.	1 E. E.	2220 Hillsboro St.	Lincolnton, N. C.
Anderson, J. R.	1 Tex.	108 Bagwell, 3308	Raleigh, N. C.
Anderssen, G. E.	3 M. E.	6 Ferndell Lane, 5893	Merchantville, N. J.
Andrews, C. H., Jr.	4 Aero.	509 Burton St.	Raleigh, N. C.
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Angarita, J. M.	1 M. E.	120 Hillcrest	Colombia, S. A.
Anthony, O. S., Jr.	1 M. E.	206 Chamberlain St.	Shelby, N. C.
Antin, Ira P.	1 Ag.	211 Hawthorne Rd.	Bronx, N. Y.
Apperson, G. M., Jr.	2 Ag.	104 Fourth, 3114	Mocksville, N. C.
Arbib, Ralph	1 Ag.	308 Pogue St.	New York City
Arey, H. L.	1 M. E.	323 Bagwell, 3389	Worcester, Mass.
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Arrington, S. M.	1 Ag.	228 Bagwell, 3360	Waynesville, N. C.
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Askew, R. H., Jr.	1 Aero.	334 Becton, Box 3802	Kinston, N. C.
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Atkins, P. M.	5 Ag.	Z-1 B Cameron Ct. Apt.,	Holly Springs, N. C.
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Atkinson, F. L.	1 Ag.	201 Clark, 4410	Fayetteville, N. C.
Atkinson, R. A., Jr.	4 Arch.	135 Turlington, 4230	Winston-Salem, N. C.
Atwood, C. V.	1 M. E.	7 Field House	Thomasville, N. C.
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Bagwell, J. F.	2 Aero.	115 Alexander, 4112	Washington, N. C.
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Baker, T. C.	1 Gen. E.	232 Becton, 3766	Wadesboro, N. C.
Bales, J. M.	1 E. E.	133 Turlington, 4228	Tapoco, N. C.
Ball, J. G., III	1 E. E.	131 Bagwell, 3331	Wake Forest, N. C.
Ball, J. T., Jr.	2 Aero.	326 Syme, 3590	Raleigh, N. C.
Ballard, A. J., Jr.	1 Aero.	Withdrew	Bridgeton, N. C.
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Ballard, F. I.	1 Arch.	101 Clark, 4401	Wilmington, N. C.
Ballard, L. H.	4 Tex.	301 Turlington, 4266	Wilmington, N. C.
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Bannerman, P. E.	3 Ag.	202 Gold, 3214	Carolina Beach, N. C.
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Barefoot, S. O.	1 Ag.	21 Dixie Trail	Dunn, N. C.
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Barker, W. T.	1 Ag.	210 Woodburn Rd.	Lumberton, N. C.
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Barnhardt, W. W.	3 Ch. E.	132 Syme, 3532	Winston-Salem, N. C.
Barnhill, J. B.	4 Ag.	1 Syme, 3597	Scotland Neck, N. C.
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Barringer, B. C., Jr.	1 Aero.	208 Becton, 3742	Salisbury, N. C.
Barton, E. I.	1 Aero.	102 Turlington, 4201	Alexandria, Va.
Barton, W. J.	3 For.	204 Watauga, 3022	Canton, N. C.
Baskerville, J. C., Jr.	1 For.	306 Becton, 3774	Lenoir, N. C.
Bason, W. A.	2 Gen. E.	600 Willard Pl.	Raleigh, N. C.
Bass, B. M., Jr.	1 Tex.	2 Berry, 4335	Tarboro, N. C.
Batchelor, B. W.	1 Ch. E.	227 Bagwell, 3359	Nashville, N. C.
Batchelor, O. R.	1 Aero.	123 Bagwell, 3323	Rocky Mount, N. C.
Bazemore, J. W.	3 Aero.	309 Welch, 3269	Mt. Olive, N. C.
Beam, H. E.	3 Ag. Ed.	201 Gold, 3213	Fallston, N. C.
Beaman, A. L., Jr.	4 E. E.	14 Syme, 3610	Snow Hill, N. C.
Beaman, P. S.	1 E. E.	B-2 Clark, 4423	Snow Hill, N. C.
Beamon, C. E.	1 E. E.	27 Becton, 3826	Goldsboro, N. C.
Beane, W. R.	1 Aero.	311 Becton, 3779	Greensboro, N. C.
Beasley, J. K.	3 Ch. E.	323 Syme, 3587	Louisburg, N. C.
Beck, R. S.	1 Aero.	103 Becton, 3703	Roselle Park, N. J.
Beddard, L. O.	1 Tex.	2008 Hillsboro St., 2008	Snow Hill, N. C.
Beecher, W. M.	1 Aero.	204 Turlington, 4235	Brooklyn, N. Y.
Beeghly, R. E.	3 Gen. E.	309 Syme, 3573	Jacksonville, Fla.
Belch, C. N.	1 E. E.	2406 Stafford Ave.	Colerain, N. C.
Bell, H. P.	3 Ag.	319 Alexander, 4182	Huntersville, N. C.
Benbenek, Raymond	3 Cer. E.	206 Berry, 4313	Jamestown, N. Y.
Bender, E. L., Jr.	1 Tex.	222 Hillcrest Rd.	New Bern, N. C.
Bennett, J. E., Jr.	1 Aero.	1908 Park Dr.	Charlotte, N. C.
Benson, M. A.	1 For.	406 Morrison Ave.	Raleigh, N. C.
Berger, C. E.	2 Ag.	126 Syme, Box 3526	Brooklyn, N. Y.
Berger, W. L.	3 Aero.	7 Enterprise St.	Winston-Salem, N. C.
Berkelheimer, Irwin	2 Tex.	212 Alexander, 4141	New York, N. Y.
Beard, S. H.	1 Occu. Inf.	2720 Bedford Ave.	Bristol, Tenn.
Bernard, J. B., Jr.	1 Geol. E.	20 Becton, 3821	Lenoir, N. C.
Bernier, H. V.	1 Arch. E.	2404 Hillsboro St.	Waterbury, Conn.
Berrier, J. H.	1 C. E.	21 Becton, 3822	Lexington, N. C.
Berryhill, E. C.	2 Ag.	6 Syme, 5127	Charlotte, N. C.
Berryhill, R. A.	1 M. E.	12 Becton, 3814	Charlotte, N. C.
Berryhill, W. W.	3 M. E.	310 Syme, 3574	Charlotte, N. C.
Best, T. R.	1 Ag.	114 Becton, 3714	Clinton, N. C.
Betts, B. S.	3 Gen. E.	1814 Park Dr.	Raleigh, N. C.
Betts, J. K.	4 Ch. E.	217 Watauga, 3035	Woodbury, N. J.
Betty, L. I., Jr.	3 Tex.	119 Syme, 3519	Raleigh, N. C.
Bishop, R. Q.	1 For.	222 Park Ave.	Chambersburg, Pa.
Bissette, L. W.	1 E. E.	217 Becton, 3751	Greensboro, N. C.
Bivens, R. W.	3 E. E.	34 Shepherd St.	Wingate, N. C.
Bivins, T. E.	4 Ind. A.	127 Syme, 3527	Hillsboro, N. C.
Black, A. E., Jr.	2 M. E.	Withdrew	Thomasville, N. C.
Blacknall, W. H.	1 E. E.	321 Becton, 3789	Henderson, N. C.
Blalock, F. W.	1 C. E.	103 Berry, 4303	Charlotte, N. C.
Blalock, J. E.	4 Aero.	117 Watauga, 3017	Stem, N. C.
Blalock, T. C.	2 Ag.	212 Turlington, 4240	Black Creek, N. C.
Blanchard, L. C.	1 Tex.	A Berry, 4344	Burlington, N. C.
Bland, A. B.	1 Ag.	13 Becton, 3815	Vanceboro, N. C.
Bland, W. M., Jr.	2 Aero.	315 Watauga, 3051	Portsmouth, Va.
Blatch, M. LeR.	1 For.	219 Bagwell, 3351	Hoopeston, Ill.
Bloom, Theodore	3 E. E.	308 Watauga, 3044	Bridgeport, Conn.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Blow, W. L.	2 Ag.	1720 Hillsboro St.	New Bern, N. C.
Blue, W. A.	2 Aero.	122 Alexander, 4117	Carthage, N. C.
Bly, F. T.	1 Ch. E.	206 Bagwell, 3338	Hendersonville, N. C.
Bobbitt, R. McD.	3 Ag.	612 Rosemont Ave.	Littleton, N. C.
Bodner, H. L.	3 M. E.	230 Turlington, 4258	Philadelphia, Pa.
Boger, J. P.	2 Ch. E.	103 Chamberlain St.	Concord, N. C.
Bohannon, J. N.	2 Ind. E.	305 Turlington, 4270	Washington, D. C.
Bollin, C. R.	3 Tex.	214 Syme, 3546	Mayodan, N. C.
Bolton, J. B., Jr.	1 For.	301 Bagwell, 3367	Wilmington, N. C.
Boltrek, Peter, Jr.	3 Aero.	302 Gold, 3226	Averne, L. I., N. J.
Bond, W. H.	1 Aero.	220 Bagwell, 3352	Upper Montclair, N. J.
Boney, C. H.	1 Aero.	130 Becton, 3730	Wilmington, N. C.
Boney, W. J.	2 Arch. E.	103 Chamberlain St.	Wilmington, N. C.
Booker, A. E. D.	2 Tex.	17 Enterprise St.	Halifax, Va.
Boone, J. B.	4 Ag. Ed.	8 Ferndell Lane	Clinton, N. C.
Boone, J. D.	3 Ch. E.	311 Alexander, 4174	Pendleton, N. C.
Boone, W. D., Jr.	2 Gen. E.	325 Turlington, 4287	Winton, N. C.
Booth, J. S.	1 Ch. E.	306 Bagwell, 3372	Durham, N. C.
Bordeaux, J. H., Jr.	2 Ag. Ed.	212 Syme, 3544	Burgaw, N. C.
Boseman, J. D.	1 M. E.	312 Welch, 3272	Rocky Mount, N. C.
Bostian, G. M.	1 M. E.	208 Clark, 4417	China Grove, N. C.
Bostic, M. F.	2 Ag. Ed.	3125 Stanhope Ave.	Magnolia, N. C.
Bostick, E. A.	1 Aero.	411 Dixie Trail	Raleigh, N. C.
Botts, W. L., Jr.	1 Aero.	224 Woodburn Rd.	Falmouth, Va.
Bouldin, D. L.	1 Ch. E.	202 Welch, 3250	High Point, N. C.
Bourne, J. K.	1 Ag.	213 Bagwell, 3345	Tarboro, N. C.
Bowden, L. S., Jr.	1 Ag.	325 Bagwell, 3391	Mocksville, N. C.
Bowen, M. F.	2 E. E.	301 Welch, 3261	Salisbury, N. C.
Bowen, W. H.	1 M. E.	16 Becton, 3818	Charlotte, N. C.
Bowles, J. P.	3 Ag.	11 Syme, 3607	Hiddenite, N. C.
Bowman, A. P.	1 E. E.	104 Logan Court	Hickory, N. C.
Bowman, R. L.	1 E. E.	120½ Groveland	Ingalls, N. C.
Boyce, R. D.	4 Ag.	109 Clark, 4409	Woodland, N. C.
Boyd, E. F., Jr.	1 M. E.	213 Alexander, 4142	Stanley, N. C.
Boyd, L. M., Jr.	1 Aero.	234 Becton, 3768	Salisbury, N. C.
Boyd, R. B., Jr.	3 E. E.	205 Welch, 3253	Durham, N. C.
Boyd, W. H., Jr.	1 Ch. E.	304 Bagwell, 3370	Charlotte, N. C.
Boyer, C. D., Jr.	3 Ch. E.	318 Watauga, 3054	Arlington, Va.
Boyer, F. S.	3 Gen. E.	325 Bagwell, 3391	Rocky Mount, N. C.
Boyer, W. W.	2 C. E.	304 Alexander, 4170	Arlington, Va.
Boyette, C. R.	2 Tex.	222 Syme, 3554	Goldsboro, N. C.
Boyette, R. C.	2 For.	333 Alexander, 4195	Goldsboro, N. C.
Boykin, T. D.	2 Ag.	301 Alexander, 4167	Bailey, N. C.
Boylan, W. M.	4 Aero.	222 Hillcrest	New Bern, N. C.
Bradford, T. M.	2 Aero.	310 Gold, Box 3234	Winston-Salem, N. C.
Brady, N. C.	5 Ag.	5½ Dixie Trail	Raleigh, N. C.
Brake, R. R., Jr.	3 Ag.	208 Welch, 3256	Battleboro, N. C.
Brame, C. B.	4 M. E.	301 Welch, 3261	Lucama, N. C.
Brannan, A. C., Jr.	1 E. E.	A Berry, 4344	Wilson, N. C.
Brantley, R. S.	3 Aero.	109 Gold, 3209	Wendell, N. C.
Brantley, W. T.	1 Aero.	328 Becton, 3796	Fayetteville, N. C.
Braswell, C. L.	1 M. E.	8 Ferndell Lane	Princeton, N. C.
Bratton, John, Jr.	3 C. E.	1530 Carr St.	Raleigh, N. C.
Brawley, T. A.	4 Ag.	4 Maiden Lane	Mooresville, N. C.
Breslow, Herbert	1 Occ. Inf.	10 Field House	Brooklyn, N. Y.
Breuer, E. P.	3 Ind. E.	105 Gold, 3205	Greensboro, N. C.
Brewer, W. P.	4 Ch. E.	16 Horne St.	Greensboro, N. C.
Brickhouse, R. E., Jr.	3 Cer. E.	308 Syme, 3572	Warrenton, N. C.
Bridge, M. P.	5 Ag. Ed.	3220 Bedford Ave.	Raleigh, N. C.
Bridges, R. H.	1 M. E.	125 Chamberlain St.	Raleigh, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Bridgman, H. T., Jr.	2 Arch. E.	320 Alexander, 4183.	Highlands, N. C.
Bridgman, M. A.	1 Aero.	106 Fourth, Box 3116	Columbia, N. C.
Briggs, E. LeR.	3 M. E.	131 Turlington, 4227	High Point, N. C.
Briggs, J. E.	5 Ag.	322 Cutler St.	Winfield, Iowa
Briggs, J. F.	1 Arch.	211 Alexander, 4140	Lexington, N. C.
Briggs, T. L., Jr.	3 M. E.	18 Horne St.	Raleigh, N. C.
Brinkley, J. W.	4 Tex.	104 Watauga, 3004	Valdese, N. C.
Brinson, L. T., Jr.	3 M. E.	105 Syme, 3505	Arapahoe, N. C.
Brinson, W. J.	1 M. E.	16 Becton, 3818	Arapahoe, N. C.
Britt, B. E.	3 Ag.	207 Welch, Box 3255	Garner, N. C.
Broadhurst, Frank	1 Aero.	228 Becton, 3762	Goldsboro, N. C.
Broadway, J. R.	1 C. E.	202 Clark, 4411	Shelby, N. C.
Brock, B. A.	1 M. E.	318 Becton, 3786	Rocky Mount, N. C.
Brooks, P. A.	4 Ch. E.	1611 Park Drive	Albemarle, N. C.
Brooks, W. H., Jr.	1 E. E.	106 Clark, 4406	Jonesboro, N. C.
Brooks, W. J.	2 Ch. E.	205 Welch, 3253	Red Springs, N. C.
Brookshire, R. R.	1 M. E.	16 Enterprise St.	Randleman, N. C.
Brose, K. R.	2 M. E.	137 Alexander, 4129	New York, N. Y.
Brotman, Arnold	3 Tex.	1715 Park Drive	Newark, N. J.
Browder, H. M., Jr.	2 Ch. E.	307 Gold, 3231	Weldon, N. C.
Brower, E. W.	2 Ag.	2408 Stafford Ave.	Ivanhoe, N. C.
Brower, J. A.	2 Ch. E.	125 Woodburn Rd.	Wingate, N. C.
Brown, A. R.	1 E. E.	129 Bagwell, 3329	Roanoke Rapids, N. C.
Brown, B. L., Jr.	1 M. E.	Route No. 3, Box 84	Raleigh, N. C.
Brown, B. M., Jr.	1 C. E.	214 Becton, 3748	Charlotte, N. C.
Brown, C. C.	1 Ch. E.	129 Bagwell, 3329	Roanoke Rapids, N. C.
Brown, C. D.	2 Ag.	1017 Brooks Ave., 5441	Charlotte, N. C.
Brown, E. L.	1 Tex.	10 Enterprise St.	Chadbourn, N. C.
Brown, H. E.	4 Ch. E.	305 Welch, 3265	Asheboro, N. C.
Brown, H. G.	5 Ag.	2512 Vanderbilt Ave.	Raleigh, N. C.
Brown, John, Jr.	1 For.	Withdrew	Whiteville, N. C.
Brown, J. C.	1 Ch. E.	224 Woodburn Rd.	Jacksonville, N. C.
Brown, J. E.	2 E. E.	124 Alexander, 4119	Snow Hill, N. C.
Brown, J. J.	3 Cer. E.	309 Syme, 3573	Mount Airy, N. C.
Brown, J. W.	1 Gen. E.	118 Becton, 3718	Mount Airy, N. C.
Brown, L. W.	4 Tex.	10 Enterprise St.	Chadbourn, N. C.
Brown, R. O.	3 Ag.	21 Syme, 3617	Charlotte, N. C.
Brown, T. M.	2 Ch. E.	237 Alexander, 4163	Asheville, N. C.
Brown, W. H.	2 E. E.	118 Alexander, 4115	Goldsboro, N. C.
Browne, T. B.	1 C. E.	302 Bagwell, 3368	Cherryville, N. C.
Brownold, M. J.	2 Tex.	111 Turlington, 4208	Red Bank, N. J.
Brummitt, N. T., Jr.	1 C. E.	9 Becton, 3811	Kittrell, N. C.
Brummitt, W. B.	1 Ch. E.	307 Berry, 4327	Winston-Salem, N. C.
Bruner, J. P.	2 Aero.	116 Alexander, 4113	Salisbury, N. C.
Bryan, J. M., Jr.	2 Tex.	4 Ferndell Lane	Burlington, N. C.
Bryan, R. C.	2 E. E.	312 Welch, 3272	Dunn, N. C.
Bryant, J. F., Jr.	3 E. E.	1911 Alexander Rd.	Raleigh, N. C.
Bryant, J. R.	1 E. E.	103 Bagwell, 3303	Rich Square, N. C.
Bryant, O. K.	1 Aero.	303 Turlington, 4268	Franklin, N. C.
Bryant, S. N.	2 Arch.	2306 Hillsboro St.	Greensboro, N. C.
Bryson, H. B.	2 Ch. E.	224 Turlington, 4252	Hendersonville, N. C.
Budlong, W. A.	1 E. E.	319 Becton, 3787	Winston-Salem, N. C.
Bullard, E. T.	4 Ag.	116 Forest Rd.	Central Valley, N. Y.
Bullard, P. D.	3 Aero.	2302 Clark Ave.	Wilson, N. C.
Bunch, J. R.	1 Aero.	303 Bagwell, 3369	Hobbsville, N. C.
Bunn, T. D.	1 M. E.	1501 Iredell Dr.	Raleigh, N. C.
Burch, J. P.	3 Ag.	311 Watauga, 3047	Mountain Park, N. C.
Burchette, G. C., Jr.	1 M. E.	2 Becton, 3804	Winston-Salem, N. C.
Burge, F. D.	1 E. E.	319 Bagwell, 3385	Winston-Salem, N. C.
Burge, F. S., Jr.	1 M. E.	319 Bagwell, 3385	Winston-Salem, N. C.

Name	Classification	School Address Dorm. Box No. or St. No.	Home Address
Burke, T. D.	4 Occ. Inf.	118 Dawson St.	Raleigh, N. C.
Burkett, T. E.	3 Tex.	312 Syme, 3576.	Jefferson, N. C.
Burkhalter, R. G., Jr.	1 E. E.	127 Alexander, 4122	Charlotte, N. C.
Burleson, C. V., Jr.	1 E. E.	20 Becton, 3821	Morganton, N. C.
Burnette, R. E., Jr.	1 Tex.	128 Becton, 3728	Draper, N. C.
Burns, H. D.	2 Ag.	208 Golt, 3220	Fairmont, N. C.
Burrows, W. L.	3 Ch. E.	16 Horne St.	Charlotte, N. C.
Burt, E. C.	1 Ag. Ed.	7 Field House	Holly Springs, N. C.
Burt, H. B.	1 M. E.	218 N. McDowell St.	Raleigh, N. C.
Burt, R. F.	1 Ag. Ed.	218 N. McDowell St.	Holly Springs, N. C.
Burtner, R. L., Jr.	2 M. E.	Field House	Washington, D. C.
Burts, T. E., Jr.	3 Ch. E.	2514 Clark Ave.	Charlotte, N. C.
Burwell, S. B.	2 Aero.	327 Alexander, 4190	Henderson, N. C.
Buscher, J. E.	1 Tex.	214 Syme, 3546	Old Greenwich, Conn.
Bushee, W. H., Jr.	3 Tex.	1720 Hillsboro St.	Springfield, Mass.
Butler, A. R.	1 Ag.	203 Bagwell, 3335	Clinton, N. C.
Butler, C. E.	1 E. E.	232 Bagwell, 3364	Kelford, N. C.
Butler, E. J.	1 C. E.	9 Berry, 4342	Windsor, N. C.
Butler, J. M.	2 Ag.	104 Turlington, 4203	Rowland, N. C.
Butner, R. E., Jr.	1 Ch. E.	225 Bagwell, 3357	Kinston, N. C.
Byrd, H. A.	2 Ag.	20 Syme, 3616	Burlington, N. C.
Byrd, R. H.	3 Ag.	109 Syme, 3509	Bunnlevel, N. C.
Byrd, Sam.	1 M. E.	109 Syme, 3509	Bunnlevel, N. C.
Byrd, W. T.	1 Ag.	124 Bagwell, 3324	Turkey, N. C.
Byrum, G. M., Jr.	1 Tex.	319 Alexander, 4182	Edenton, N. C.
Cacella, A. F.	3 Ch. E.	120 Ashe Ave.	New Bedford, Mass.
Cahill, B. M., Jr.	1 M. E.	4 Becton, 3806	Winston-Salem, N. C.
Cain, E. P., Jr.	2 Ch. E.	1912 Fairview Rd.	Raleigh, N. C.
Caldwell, K. E., Jr.	1 Tex.	220 Turlington, 4248	Concord, N. C.
Calhoun, L. G., Jr.	4 Ag. Ed.	311 Watauga, 3047	Rocky Mount, N. C.
Callaway, R. F.	2 Tex.	227 Syme, 3559	Henderson, N. C.
Callis, B. R.	1 Aero.	123 Becton, 3723	Ahoskie, N. C.
Callis, H. M.	2 Ag.	125 Turlington, 4222	Willow Springs, N. C.
Calman, C. M.	4 Ag.	1304 Hillsboro St.	New York, N. Y.
Calvert, M. C. (Miss)	Aud.	105 Polk St.	Raleigh, N. C.
Cameron, H. L.	4 Ag. Ed.	12 Syme, 3608	Vass, N. C.
Cameron, J. C.	1 Ag.	102 Welch, 3238	Polkton, N. C.
Cameron, L. J., Jr.	1 Ag.	306 Watauga, 3043	Kinston, N. C.
Camm, J. C.	1 M. E.	C-101 Boylan Apts.	Raleigh, N. C.
Camp, J. G., Jr.	1 Ch. E.	124 Becton, 3724	Ahoskie, N. C.
Campbell, B. W.	2 Ag. Ed.	11 Y.M.C.A., 5276	Union Grove, N. C.
Campbell, J. D.	1 M. E.	331 Becton, 3799	Greensboro, N. C.
Campbell, J. R.	2 E. E.	333 Turlington, 4294	Burlington, N. C.
Campbell, P. O.	1 C. E.	417 Cutler St.	Raleigh, N. C.
Campbell, P. P.	1 Aero.	302 Hawthorne Rd.	Raleigh, N. C.
Campbell, W. A.	1 Aero.	303 Berry, 4323	Charlotte, N. C.
Campbell, Wade Earl, Jr.	1 Ch. E.	113 Bagwell, 3313	Taylorsville, N. C.
Campbell, Wilbur Evans	3 Arch.	304 Welch, 3264	Wethersfield, Conn.
Cannady, N. E., Jr.	4 E. E.	2306 Hillsboro St.	Oxford, N. C.
Cannon, L. H.	2 M. E.	1720 Hillsboro St.	New Bern, N. C.
Cannon, W. F.	1 Tex.	222 Park Ave.	Concord, N. C.
Capehart, A. A., Jr.	3 Aero.	201 Turlington, 4232	Washington, N. C.
Capel, G. L.	3 Ag. Ed.	301 Watauga, 3037	Garysburg, N. C.
Carey, J. P.	4 Arch. E.	2405 Clark Ave.	Kinston, N. C.
Carlisle, H. B.	1 For.	313 Berry, 4333	Spartanburg, S. C.
Carlton, W. B.	1 Aero.	301 Bagwell, 3367	Warsaw, N. C.
Carpenter, J. B., Jr.	1 Ch. E.	8 Berry, 4341	Greensboro, N. C.
Carpenter, M. G., Jr.	1 M. E.	222 Park Ave.	Durham, N. C.
Carpenter, T. B.	2 M. E.	235 Alexander, 4162	Greensboro, N. C.
Carr, Gerald	1 C. E.	312 Chamberlain St.	Magnolia, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Carr, R. S.	1 Ag.	134 Becton, 3734	Clinton, N. C.
Carr, W. A.	1 Ch. E.	203 Becton, 3737	Farmville, N. C.
Carter, J. A.	2 E. E.	110 Syme, 3510	Salisbury, N. C.
Carter, J. E.	1 Aero.	204 Becton, 3738	Wilmington, N. C.
Cartner, Sam	4 Ag. Ed.	4 Syme, 3600	Mocksville, N. C.
Cartner, T. E.	2 Ag. Ed.	223 Turlington, 4251	Mocksville, N. C.
Carty, E. L.	3 E. E.	201 Alexander, 4133	Selma, N. C.
Carvalho, Raul	3 Ch. E.	Gymnasium	Swannanoa, N. C.
Carver, W. R.	2 C. E.	103 Turlington, 4202	Elizabeth City, N. C.
Case, C. B., Jr.	1 M. E.	339 Turlington, 4298	Wilmington, N. C.
Casey, C. W.	1 Aero.	112 Syme, 3512	Rocky Point, N. C.
Casey, J. F.	2 Ag.	112 Turlington, 4209	Goldsboro, N. C.
Cates, R. V., Jr.	1 Ch. E.	2207 Hope St.	Winston-Salem, N. C.
Cathy, D. W.	1 Aero.	117 Bagwell, 3317	Charlotte, N. C.
Caton, J. C.	4 Tex.	102 Clark, 4402	Concord, N. C.
Cazel, H. A.	2 Ind. E.	10 Y.M.C.A., 5276	Asheville, N. C.
Cease, C. B., Jr.	2 Ch. E.	209 Alexander, 4139	Greensboro, N. C.
Chadwick, J. W., Jr.	1 E. E.	2511 Stafford Ave.	Rocky Mount, N. C.
Chamblee, D. S.	4 Ag.	104 Gold, 3204	Zebulon, N. C.
Champion, P. L.	4 Tex.	102 Gold, 3202	Spindale, N. C.
Chandler, J. M.	2 Ch. E.	220 Turlington, 4248	Salisbury, N. C.
Chandler, W. S.	3 Ag. Ed.	4 Syme, 3600	Rockingham, N. C.
Chapman, R. C., Jr.	2 C. E.	133 Turlington, 4228	Morganton, N. C.
Charlton, W. G.	1 M. E.	104 Berry, 4304	Goldsboro, N. C.
Chase, W. C.	1 Ag. E.	205 Forest Rd.	Raleigh, N. C.
Cherkas, W. M., Jr.	1 Aero.	305 Alexander, 4171	Oxford, N. C.
Cherry, L. T.	1 Aero.	16 Enterprise St.	Greenville, N. C.
Cheshire, J. W., Jr.	1 Aero.	1616 Ambleside Dr.	Hillsboro, N. C.
Chesnutt, H. F.	3 Ch. E.	218 Syme, 3550	Clinton, N. C.
Chesnutt, R. A.	2 E. E.	202 Groveland Ave.	Seven Springs, N. C.
Chesson, E. E., Jr.	1 Ch. E.	204 Berry, 4311	Columbia, N. C.
Chesson, L. W.	1 E. E.	224 Woodburn Rd.	Vanceboro, N. C.
Chestnut, D. D.	1 Tex.	302 Welch, 3262	Roanoke Rapids, N. C.
Chestnutt, R. L.	3 E. E.	222 Hillcrest	Snow Hill, N. C.
Childers, J. E.	1 Ag.	Dairy, 5127	Whittier, N. C.
Christian, J. H., III	1 E. E.	Withdrew	Charlotte, N. C.
Church, J. R.	4 Ag.	6 Syme, 3602	North Wilkesboro, N. C.
Clapp, H. P.	3 C. E.	330 Syme, 3594	Greensboro, N. C.
Clark, Foy	4 Tex.	Field House	Mt. Airy, N. C.
Clark, F. O.	1 Ag.	315 Bagwell, 3381	Inez, N. C.
Clark, J. A., Jr.	1 Arch. E.	224 Bagwell, 3356	Grifton, N. C.
Clark, J. M., Miss	2 Tex.	1917 Alexander Rd.	Raleigh, N. C.
Clark, R. B.	2 Aero.	221 Alexander, 4150	Weldon, N. C.
Clark, T. J.	2 Tex.	2306 Hillsboro St.	Charlotte, N. C.
Clark, W. B., Jr.	2 Ag.	327 Alexander, 4190	Wilson, N. C.
Clark, W. M.	2 Ch. E.	322 Syme, 3586	Lynchburg, Va.
Clarke, L. H.	1 E. E.	125 Woodburn Rd.	Kenly, N. C.
Clee, D. B.	2 For.	1313 Hillsboro St.	Asheville, N. C.
Clee, G. P.	3 M. E.	Basement 1911, 5241	Asheville, N. C.
Clement, H. M.	3 Tex.	115 Turlington, 4212	Goldsboro, N. C.
Clements, J. L.	1 Ch. E.	227 Becton, 3761	North Wilkesboro, N. C.
Cline, A. A.	1 Ch. E.	104 Bagwell, 3304	Taylorsville, N. C.
Cline, J. C.	2 Ag. Ed.	312 Syme, 3576	Shelby, N. C.
Coates, J. B., II	2 Ag.	2406 Hillsboro St.	Smithfield, N. C.
Cobb, J. L., Jr.	1 E. E.	106 Bagwell, 3306	Black Mtn., N. C.
Coble, C. B., Jr.	3 Ag. Ed.	217 Alexander, 4146	Burlington, N. C.
Coble, E. F.	4 Tex.	203 Turlington, 4234	Winston-Salem, N. C.
Coble, G. W.	2 M. E.	218 Alexander, 4147	Burlington, N. C.
Coble, K. L.	1 Aero.	310 Berry, 4330	Burlington, N. C.
Cochran, R. B., Jr.	2 M. E.	4 Ferndell Lane	Charlotte, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Cockerham, C. C.	4 Ag.	122 Syme, 3522	Mtn. Park, N. C.
Cohen, Mario	1 M. E.	337 Turlington, 4296	Miami Beach, Fla.
Cole, E. H.	2 Tex.	1720 Hillsboro St.	Cincinnati, Ohio
Cole, E. R.	2 Ch. E.	225 Alexander, 4154	Phoebus, Va.
Cole, F. A.	1 E. E.	Withdrew	Asheville, N. C.
Coles, P. S.	5 Ag. Ec.	422 N. Blount St.	Raleigh, N. C.
Colenda, J. R.	1 Ch. E.	211 Groveland Ave.	Morehead City, N. C.
Collier, J. C.	1 Aero.	905 Wilmington Terrace	Raleigh, N. C.
Collins, G. D., Jr.	Aud.	130 Forest Rd.	Raleigh, N. C.
Collins, I. K.	2 Aero.	223 Syme, 3555	Raeford, N. C.
Collins, P. E.	4 M. E.	109 Watauga, 3009	Newport News, Va.
Colson, Gardner	3 Tex.	222 Hillcrest Rd.	Montclair, N. J.
Coltrane, A. L.	2 Ag.	314 Alexander, 4177	Jamestown, N. C.
Cone, C. T.	1 Ag.	206 Becton, 3740	Middlesex, N. C.
Conkling, C. W., Jr.	1 Aero.	215 Becton, 3749	Jacksonville, N. C.
Connell, W. A., Jr.	1 Ag.	116 Becton, 3716	Warrenton, N. C.
Connelly, F. G.	1 Tex.	119 Syme, 3519	Lock Haven, Pa.
Connelly, P. E.	2 Ag.	418 St. Mary's St.	Raleigh, N. C.
Conrad, G. W.	4 Ag.	107 Gold, 3207	Lexington, N. C.
Conyers, F. R., Jr.	2 E. E.	326 Syme, 3590	Rocky Mount, N. C.
Cook, G. T.	1 E. E.	332 Bagwell, 3398	New Bern, N. C.
Cook, L. P., Jr.	1 Ch. E.	8 Ferndell Lane	Whiteville, N. C.
Cook, T. E.	1 Ch. E.	2510 Vanderbilt Ave.	Washington, D. C.
Cooke, G. C., Jr.	1 Aero.	332 Becton, 3800	Winston-Salem, N. C.
Cooley, J. A.	2 Ag.	303 Alexander, 4169	Wagram, N. C.
Cooper, J. E.	1 For.	R. F. D. No. 4	Raleigh, N. C.
Cooper, Kendall	1 Aero.	302 Turlington, 4267	Nashville, N. C.
Coor, E. O., Jr.	4 Ag. Ec.	2220 Hillsboro St.	Selma, N. C.
Copeland, W. E.	1 Aero.	130 Woodburn Rd.	Fremont, N. C.
Corbin, W. L.	4 C. E.	216 Syme, 3548	Otto, N. C.
Coren, C. H.	1 M. E.	108 Becton, 3708	Belmont, N. C.
Cornwell, R. S.	4 Aero.	331 Syme, 3595	Nashville, N. C.
Cornwell, T. S., Jr.	4 Ag.	104 Faircloth St.	Shelby, N. C.
Cotton, K. B.	1 Ag.	224 Woodburn Rd.	Kipling, N. C.
Couch, J. B., Jr.	1 For.	1814 Park Drive	Durham, N. C.
Council, J. M., Jr.	3 E. E.	201 Welch, 3249	Lake Waccamaw, N. C.
Covington, M. C.	4 Ag. Ed.	205 Syme, 3537	Jonesboro, N. C.
Cox, A. D., Jr.	3 Ag.	212 Syme, 3544	Castle Hayne, N. C.
Cox, A. L.	1 C. E.	106 Clark, 4406	Jonesboro, N. C.
Cox, E. D.	3 Gen. E.	121 Syme, 3521	Charlotte, N. C.
Cox, G. C., Jr.	4 Ch. E.	4 Ferndell Lane	Greensboro, N. C.
Cox, H. A., Jr.	2 M. E.	309 Turlington, 4272	Mayodan, N. C.
Cox, J. F., Jr.	1 Aero.	311 S. Dawson St.	Raleigh, N. C.
Cox, J. T.	1 M. E.	13 West Dixie Dr.	Raleigh, N. C.
Craig, F. R.	4 Ag. Ed.	120 Syme, 3520	Mt. Holly, N. C.
Cramsie, J. R.	2 Tex.	104 Logan Court	Montreal, Canada
Craven, D. A.	4 Aero.	220 Syme, 3552	Fayetteville, N. C.
Creagh, J. W., Jr.	1 Aero.	315 Bagwell, 3381	Pollocksville, N. C.
Creasman, E. H., Jr.	4 Cer. E.	10 Enterprise St.	Seabrook, S. C.
Credle, W. C.	2 Aero.	137 Alexander, 4129	Belhaven, N. C.
Creef, G. H.	3 M. E.	313 Watauga, 3049	Manteo, N. C.
Crenshaw, L. F., Jr.	1 Aero.	212 Becton, 3746	Charlotte, N. C.
Critcher, J. A.	1 Aero.	104 Becton, 3704	Williamston, N. C.
Critcher, T. S.	3 Ag.	317 Watauga, 3053	Williamston, N. C.
Critcher, W. E., Jr.	1 M. E.	Route 5, Wendell Rd.	Raleigh, N. C.
Crocker, William	2 C. E.	1012 Vance St.	Raleigh, N. C.
Cromwell, C. W.	3 Ch. E.	2306 Hillsboro St.	Asheville, N. C.
Croom, H. H.	1 Ag.	304 Berry, 3424	Lenoir, N. C.
Crow, G. L.	2 C. E.	219 Alexander, 4148	Shelby, N. C.
Crumley, W. E.	1 Aero.	333 Bagwell, 3399	Charlotte, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Culp, A. E., Jr.	4 Tex.	237 Turlington, 4262	Gastonia, N. C.
Culp, J. M., Jr.	2 Tex.	4 Ferndell Lane	Charlotte, N. C.
Cummings, H. H.	2 C. E.	335 Alexander, 4196	Kinston, N. C.
Currier, R. R.	1 Tex.	209 Becton, 3743	Roxboro, N. C.
Currin, T. B.	1 Ag. Ed.	2008 Hillsboro St.	Creedmoor, N. C.
Curtis, J. M.	3 Ag.	Military Rm, Gym, 5061	Franklinville, N. C.
Cutchin, D. E.	2 Ind. Ed.	127 Syme, 3527	Whitakers, N. C.
Cutting, A. E.	1 Tex.	128 Turlington, 4225	Whiteville, N. C.
Dailey, T. J., Jr.	1 M. E.	213 Woodburn Rd.	White Oak, N. C.
Dailey, V. C.	4 Aero.	218 Watauga, 3036	Hatteras, N. C.
Dalrymple, R. W.	4 Ag.	326 Becton, 3794	Jonesboro, N. C.
Dalton, R. I., Jr.	4 Tex.	2405 Clark Ave.	Charlotte, N. C.
Dalton, R. M.	1 Tex.	204 Bagwell, 3336	Charlotte, N. C.
Dalton, R. W., Jr.	1 Tex.	107 Fourth, 3117	Winston-Salem, N. C.
Dameron, H. W.	4 Ag. Ed.	Gym, 5061	Bessemer City, N. C.
Dammann, Richard	3 Cer. E.	3 Gym, 5382	Amityville, N. Y.
Daniel, G. C.	1 Ag.	233 Alexander, 4161	Blanche, N. C.
Daniels, M. P.	1 Aero.	115 Park Ave.	Wilmington, N. C.
Darholt, J. O.	2 Aero.	2514 Clark Ave.	Charlotte, N. C.
Darr, J. L., Jr.	1 M. E.	130 Hawthorne Rd.	High Point, N. C.
Daughtridge, R. L.	4 Ag.	2004 Hillsboro St., 5565	Rocky Mount, N. C.
Davis, A. A.	1 Gen. E.	229 Alexander, 4158	Gastonia, N. C.
Davis, C. K., Jr.	2 Aero.	329 Alexander, 4192	Wilmington, N. C.
Davis, H. D.	2 Ch. E.	134 Turlington, 4229	Marshallberg, N. C.
Davis, J. D.	2 Aero.	119 Turlington, 4216	W. Asheville, N. C.
Davis, J. E.	4 Ag. Ed.	107 Watauga, 3007	Waynesville, N. C.
Davis, J. M., Jr.	2 Ag.	338 Turlington, 4297	East Bend, N. C.
Davis, L. J., Jr.	1 Aero.	2306 Hillsboro St.	Morehead City, N. C.
Davis, N. E., Jr.	1 Aero.	326 Becton, 3794	Wilmington, N. C.
Davis, O. L., Jr.	1 Tex.	203 Bagwell, 3335	Mooreville, N. C.
Davis, R. C., Jr.	1 C. E.	306 Bagwell, 3372	Asheville, N. C.
Davis, W. C.	1 E. E.	212 Bagwell, 3344	Cooleemee, N. C.
Dawson, C. G.	2 Ag.	111 Gold, 3211	Dunn, N. C.
Dawson, C. S.	4 Tex.	2405 Clark Ave.	Cramerton, N. C.
Dawson, E. B.	3 E. E.	12 Horne St.	Kinston, N. C.
Dayvault, N. E.	2 For.	114 Syme, 3514	Concord, N. C.
Deal, R. J.	2 Ag.	2620 Van Dyke Ave.	Asheville, N. C.
Dean, C. T., Jr.	3 Ag. Ed.	209 Gold, 3221	Louisburg, N. C.
Dean, J. G.	1 C. E.	209 Gold, 3221	Louisburg, N. C.
Dearstyne, R. H.	2 Ch. E.	2509 Fairview Rd.	Raleigh, N. C.
Deaton, J. H.	1 M. E.	7 Maiden Lane	Liberty, N. C.
Debnam, W. T.	1 Tex.	207 Welch, 3255	Zebulon, N. C.
Dees, W. R., Jr.	1 Aero.	6 Berry, 4339	Fremont, N. C.
Degan, Ralph	3 Tex.	1304 Hillsboro St.	Bronx, N. Y.
DeLamar, J. T.	2 Ch. E.	123 Chamberlain St.	Charlotte, N. C.
DeLaney, J. R.	4 Ag.	207 Syme, 3539	Charlotte, N. C.
DeLaney, W. W.	1 E. E.	8½ Maiden Lane	Matthews, N. C.
de la Rama, Jesus, Jr.	4 Tex.	213 Woodburn Rd.	Baltimore, Md.
Delbridge, J. D.	1 M. E.	206 Becton, 3740	Spring Hope, N. C.
Dellinger, H. E.	1 M. E.	10 Enterprise St.	Kannapolis, N. C.
Denmark, G. T.	1 Ch. E.	229 Becton, 3763	Goldsboro, N. C.
Denny, C. R.	2 Ch. E.	104 Alexander, 4104	Winston-Salem, N. C.
Denton, E. C., Jr.	4 E. E.	2209 Hope St.	Morganton, N. C.
Deranek, R. H.	1 For.	Withdrew	Stamford, Conn.
Dermid, J. F.	1 Ch. E.	202 Berry, 4309	Charlotte, N. C.
De Vidts, P. E.	Aud.	308 Fourth, 3134	Santiago de Chile
Diamond, Harvey	1 Ch. E.	329 Bagwell, 3395	New York, N. Y.
Dickens, S. P.	4 Ch. E.	318 Watauga, 3054	Enfield, N. C.
Dickens, W. J.	4 Ag. Ed.	101 Gold, 3201	Varina, N. C.
Dickinson, R. C.	1 E. E.	115 Becton, 3715	Greensboro, N. C.



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Dickinson, W. T.	2 E. E.	116 Woodburn Rd.	Wilson, N. C.
Dickson, B. H.	2 M. E.	1535 Iredell Dr.	Raleigh, N. C.
Dilday, H. L.	1 Aero.	106 Horne St.	Ahoskie, N. C.
Dilday, L. M.	4 Ag.	110 Gold, 3210	Ahoskie, N. C.
Dillard, L. P.	1 E. E.	3107 Hillsboro St.	Raleigh, N. C.
Dixon, C. B.	1 Aero.	127 S. Harrington St.	Raleigh, N. C.
Dixon, C. E.	1 Ag. Ed.	209 Bagwell, 3341	Kings Mtn., N. C.
Dixon, D. B.	1 Ag. Ed.	121 Bagwell, 3321	Mebane, N. C.
Dixon, H. C.	3 Tex.	406 Bickett Blvd.	Raleigh, N. C.
Dixon, J. H.	1 Ag. Ed.	2316 Hillsboro St.	Robersonville, N. C.
Dixon, K. P.	2 M. E.	208 Bagwell, 3340	Wake Forest, N. C.
Dixon, L. B.	4 Ag.	120 Syme, 3520	Snow Hill, N. C.
Dixon, W. J., Jr.	1 Aero.	18½ Horne St.	Charlotte, N. C.
Doak, R. R.	4 Tex.	120 Woodburn Rd.	Raleigh, N. C.
Dobbins, J. B.	1 Ch. E.	320 Becton, 3788	Pamona, N. C.
Dobson, L. A.	1 Ag.	313 Bagwell, 3379	Statesville, N. C.
Doggett, J. W.	2 E. E.	303 Syme, 3576	Washington, D. C.
Doolan, J. H.	1 Tex.	127 W. Park Dr.	Brooklyn, N. Y.
Doub, J. M.	1 E. E.	322 Becton, 3790	Winston-Salem, N. C.
Douglass, C. A., II	1 M. E.	1924 St. Mary's St.	Raleigh, N. C.
Downs, A. C.	1 E. E.	220 Becton, 3754	Greensboro, N. C.
Drummond, J. F.	4 Ch. E.	214 Watauga, 3032	Prospect Park, Pa.
Drye, A. G.	1 Aero.	23 Logan Court	Kannapolis, N. C.
Duncan, J. A.	3 Ag. Ed.	112 Gold, 3212	Trinity, N. C.
Duncan, James Moony	2 Aero.	318 Turlington, 4280	Charlotte, N. C.
Duncan, Jay Murphy	1 Aero.	233 Bagwell, 3365	Murfreesboro, N. C.
Duncan, R. H.	1 Aero.	211 Berry, 4318	Greenville, N. C.
Dunlea, R. A., Jr.	1 E. E.	132 Becton, 3732	Wrightsville Beach, N. C.
Dunn, J. W.	1 Gen. E.	120 Hillcrest Rd.	Pinetops, N. C.
Dunn, L. F.	1 Ch. E.	205 Berry, 4312	Charlotte, N. C.
Dunn, M. A., Miss	2 Aero.	2209½ Hope St.	Asheville, N. C.
Dunn, M. B.	3 Aero.	311 Bagwell, 3377	Charlotte, N. C.
Dworkin, Marvin	1 Tex.	201 Becton, 3735	Brooklyn, N. Y.
Dyer, P. C.	1 C. E.	121 Becton, 3721	Cumb. Mills, Me.
Dysart, C. E.	4 C. E.	201 Watauga, 3019	Marion, N. C.
Eagle, H. K.	2 Tex.	105 Syme, 3505	Salisbury, N. C.
Eaker, B. H.	4 Ag.	20 Syme, 3616	Crouse, N. C.
Edelman, Charles	1 Tex.	202 Becton, 3736	Bronx, N. Y.
Edge, M. W.	2 Ag. Ed.	213 Woodburn Rd.	Fayetteville, N. C.
Edgerton, H. Y., Jr.	1 Aero.	303 Berry, 4323	Charlotte, N. C.
Edgerton, I. W.	4 Ag.	104 Welch, 3240	Kenly, N. C.
Edkins, R. N.	4 Ch. E.	217 Watauga, 3035	Chapel Hill, N. C.
Edwards, C. L.	1 E. E.	133 Bagwell, 3401	Roanoke Rapids, N. C.
Edwards, E. S., Jr.	2 Ag.	Apt. I-5 Raleigh Apts.	Hookerton, N. C.
Edwards, H. L.	2 Ag.	108 Gold, 3208	Marshville, N. C.
Edwards, J. B., Jr.	2 M. E.	328 Alexander, 4191	Wilmington, N. C.
Edwards, J. R.	2 Aero. E.	326 Alexander, 4189	Wilmington, N. C.
Edwards, R. D.	1 C. E.	104 Clark, 4404	Marshville, N. C.
Efland, T. D.	1 M. E.	328 Bagwell, 3394	Efland, N. C.
Eisenberg, R. E.	1 For.	205 Berry, 4312	Bronx, N. Y.
Elam, W. E.	1 C. E.	2220 Hillsboro St.	Statesville, N. C.
Eller, W. R.	3 Ag. Ed.	101 Gold, 3201	Salisbury, N. C.
Elliot, W. H., Jr.	1 Ch. E.	112 Bagwell, 3312	Fayetteville, N. C.
Elliott, H. C.	1 Cer. E.	105 Alexander, 4105	Charlotte, N. C.
Ellis, R. E.	3 Aero.	325 Turlington, 4287	Marion, N. C.
Ellis, R. R.	3 Ch. E.	16 Maiden Lane	Gasburg, Va.
Ellis, W. J., Jr.	2 For.	105 Welch, 3241	Philadelphia, Pa.
Ellison, W. T., Jr.	2 E. E.	5 Field House	Mullens, W. Va.
Elmore, W. F.	3 Ag.	2209½ Hope St.	Dunn, N. C.
English, C. E., Jr.	1 E. E.	310 Bagwell, 3376	W. Asheville, N. C.

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English, S. J.	1 Aero.	5½ Dixie Trail	Fairmont, N. C.
Ennis, W. H.	1 E. E.	105 Fourth, 3115	Dunn, N. C.
Entwistle, W. H., Jr.	1 Tex.	129 Becton, 3729	Rockingham, N. C.
Eppes, Robertson, Jr.	4 Ch. E.	302 Watauga, 3038	Laurinburg, N. C.
Epstein, H. L.	4 For.	202 Turlington, 4233	Far Rockaway, N. Y.
Erol, Demirhan	4 C. E.	115 Woodburn Rd.	Washington, D. C.
Eskridge, L. S.	1 Tex.	2012 Hillsboro St.	Shelby, N. C.
Etheridge, J. N.	4 For.	2220 Hillsboro St.	Williamsburg, Va.
Etheridge, L. R.	1 E. E.	324 Bagwell, 3390	Franklinton, N. C.
Ethridge, J. W.	4 Ind. E.	314 Watauga, 3050	Goldsboro, N. C.
Eubanks, A. G.	1 Aero.	310 Becton, 3778	Sanatorium, N. C.
Everett, F. B.	4 Ag.	122 Syme, 3522	Palmyra, N. C.
Everett, R. O.	3 Ch. E.	306 Watauga, 3042	Greenville, N. C.
Everett, W. E., II	2 Ag.	104 Turlington, 4203	Robersonville, N. C.
Everhart, L. K.	1 M. E.	131 Becton, 3731	Lexington, N. C.
Fagala, O. H.	2 M. E.	307 Watauga, 3043	Durham, N. C.
Faircloth, A. T.	2 Ag.	0 Field House	Washington, D. C.
Faison, O. W.	1 E. E.	207 Becton, 3741	Knightdale, N. C.
Faison, W. A., Jr.	3 M. E.	211 Syme, 3543	Chester, Penn.
Fallwell, E. L.	2 Ch. E.	1709 St. Mary's St.	Raleigh, N. C.
Fansler, F. I., Jr.	1 C. E.	1 Becton, 3803	Winston-Salem, N. C.
Farlow, J. N.	5 C. E.	224 Woodburn Rd., 5472	Greensboro, N. C.
Farmer, K. H.	1 Ch. E.	8 Ferndell Lane	Bailey, N. C.
Farrar, J. A., Jr.	1 Tex.	6 Ferndell Lane	Brooklyn, N. Y.
Farrell, R. P., Jr.	1 Tex.	2705 Vanderbilt St.	Gastonia, N. C.
Farrior, G. M.	1 Ch. E.	10 Rosemary St.	Raleigh, N. C.
Farthing, E. H. G.	4 Gen. E.	118 Watauga, 3001	Valle Crucis, N. C.
Faulk, J. F.	1 Arch. E.	104 Clark, 4404	Jonesboro, N. C.
Faulkner, T. F.	1 E. E.	120 Bagwell, 3320	Henderson, N. C.
Fearrington, T. H.	1 Tex.	127 Turlington, 4224	Valdese, N. C.
Feldman, A. W.	5 Ag.	2804 Hillsboro St.	Chicago, Ill.
Feldman, Irving	2 Ag.	313 Syme, 3577	Brooklyn, N. Y.
Ferguson, J. D., Jr.	3 Tex.	339 Alexander, 4199	W. Englewood, N. J.
Ferguson, L. R.	1 M. E.	133 Becton, 3733	Clinton, S. C.
Ferguson, O. E., Jr.	1 E. E.		Millbrook, N. C.
Ferguson, W. B., Jr.	1 C. E.	229 Bagwell, 3361	Weaverville, N. C.
Ferree, C. A.	1 Aero.	210 Becton, 3744	High Point, N. C.
Ferrell, J. R.	4 Ag.	102 Logan Court	Durham, N. C.
Fetner, C. J., Jr.	3 Ch. E.	217 Alexander, 4146	Hamlet, N. C.
Finch, E. A.	4 Ag.	305 Welch, 3265	Bailey, N. C.
Finch, H. A.	1 Ag.	5 Becton, 3807	Wilson, N. C.
Finch, T. H.	1 Ag. Ed.	223 Becton, 3757	Dunn, N. C.
Fincher, C. R.	3 Ag.	319 Syme, 3583	Matthews, N. C.
Finison, B. F.	1 Ch. E.	106 Becton, 3706	Troy, N. C.
Finkelstein, Irwin	1 Gen. E.	114 Bagwell, 3314	Brooklyn, N. Y.
Finlay, W. A., Jr.	1 Aero.	2306 Hillsboro St.	Wilmington, N. C.
Finn, D. B.	4 Tex.	225 Bagwell, 3357	Concord, N. C.
Fischer, J. M.	1 Ch. E.	1304 Hillsboro St.	Brooklyn, N. Y.
Fishbein, Bernard	3 Ag.	215 Turlington, 4223	Bronx, N. Y.
Fisher, C. R.	1 Tex.	2220 Hillsboro St.	Salisbury, N. C.
Fisher, F. J.	3 Ch. E.	16 Maiden Lane	Roanoke Rapids, N. C.
Fisher, I. M., Jr.	3 Tex.	303 Turlington, 4268	Oriental, N. C.
Fisher, M. M., Jr.	1 C. E.	212 Becton, 3746	Charlotte, N. C.
Fisher, W. L.	2 M. E.	325 Syme, 3589	Salisbury, N. C.
Fisher, W. S., Jr.	2 Tex.	319 Syme, 3583	Winston-Salem, N. C.
Fisler, C. A.	1 M. E.	2702 Hillsboro St.	Ivanhoe, N. C.
Fisler, J. F.	3 Ag.	201 Syme, 3533	Ivanhoe, N. C.
Flake, W. H.	4 Ag. Ed.	102 Welch, 3238	Wadesboro, N. C.
Fleming, E. E.	2 Ag.	125 Turlington, 4222	Manson, N. C.
Fleming, W. E.	4 Ag. Ed.	101 Welch, 3237	Fuquay Springs, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Fleming, W. L.	4 C. E.	101 Welch, 3237	Fuquay Springs, N. C.
Flocker, D. P.	1 Aero.	204 Berry, 4311	Plainfield, N. J.
Flora, W. C., Jr.	2 E. E.	206 Gold, 3218	Moyock, N. C.
Flowers, C. D.	2 Aero.	211 Welch, 3259	Lumberton, N. C.
Flowers, J. R.	3 Arch. E.	211 Welch, 3259	Lumberton, N. C.
Flowers, L. H., Jr.	1 Tex.	216 Bagwell, 3348	Wilson, N. C.
Flowers, W. C., Jr.	1 Ag. Ed.	120 Park Ave.	Raleigh, N. C.
Floyd, A. A.	1 For.	213 Woodburn Rd.	Manning, S. C.
Flynt, F. P., Jr.	1 Ch. E.	211 Berry, 4318	Winston-Salem, N. C.
Flythe, J. S.	4 E. E.	3020 Eton Rd.	Raleigh, N. C.
Fondren, J. E.	2 C. E.	207 Gold, 3219	Macon, Ga.
Fondren, R. W.	1 Aero.	320 Becton, 3788	Greensboro, N. C.
Ford, J. W.	1 Ag.	2220 Hillsboro St.	Lincolnton, N. C.
Forrest, H. O.	2 Tex.	107 Alexander, 4106	Mt. Airy, N. C.
Forster, C. M.	5 Ag. Ec.	1924 Sunset Dr.	Raleigh, N. C.
Fortune, W. C.	1 E. E.	3 Becton, 3805	Asheville, N. C.
Foster, A. W.	4 C. E.	31 Shepherd St.	Raleigh, N. C.
Foster, R. M.	4 M. E.	506 Cutler St.	Raleigh, N. C.
Foust, W. L.	2 Ag.	112 Cox Ave.	Charlotte, N. C.
Fouts, J. W.	1 C. E.	214 Bagwell, 3346	Lexington, N. C.
Fowler, A. A., Jr.	2 Tex.	4 Ferndell Lane	Fairmont, N. C.
Fowler, J. E.	1 Tex.	14 Horne St., Apt. B	Burlington, N. C.
Fowler, P. M.	2 Ag. E.	139 Alexander, 4131	Thomasville, N. C.
Fox, J. V., Jr.	1 Aero.	1 Berry, 4334	Randleman, N. C.
Frady, R. G.	4 Ch. E.	305 Watauga, 3041	Sylva, N. C.
Francis, J. G.	3 Ag.	107 Watauga, 3007	Waynesville, N. C.
Franklin, J. W.	2 M. E.	222 Park Ave.	Stem, N. C.
Frazier, E. D.	2 M. E.	2514 Clark Ave.	High Point, N. C.
Freed, J. B.	2 M. E.	301 Park Ave.	Winston-Salem, N. C.
Freese, R. J.	1 Ch. E.	222 Becton, 3756	Charlotte, N. C.
Friday, H. B., Jr.	1 Ch. E.	205 Becton, 3739	Salisbury, N. C.
Fried, A. L.	3 Tex.	313 Alexander, 4176	New York, N. Y.
Frizzelle, J. B., Jr.	3 Ag.	2405 Clark Ave.	Snow Hill, N. C.
Fry, C. W.	3 Ind. A.	307 Syme, 3571	Raleigh, N. C.
Fryar, H. V.	4 Ag.	8 Syme, 3604	McLeansville, N. C.
Frye, R. E.	3 Ag.	102 Watauga, 3002	Carthage, N. C.
Fuchs, David	2 Tex.	202 Fourth, 3120	Kinston, N. C.
Fugate, P. T., Jr.	1 Aero.	110 Becton, 3710	Elm City, N. C.
Fulbright, H. P.	1 Ag. Ed.	201 Clark, 4410	Vale, N. C.
Fulcher, O. M.	3 Ag.	104 Syme, 3504	Leaksville, N. C.
Fulghum, J. T.	2 C. E.	2405 Clark Ave.	Raleigh, N. C.
Fulk, S. P., Jr.	3 M. E.	2513 Clark Ave.	Winston-Salem, N. C.
Fuller, C. W.	1 Tex.	314 Becton, 3782	New York, N. Y.
Fuller, G. A.	2 E. E.	126 Turlington, 4223	Hickory, N. C.
Fuller, G. C.	1 Ch. E.	111 Welch, 3247	Gastonia, N. C.
Funderburke, J. T.	1 For.	131 Bagwell, 3331	Monroe, N. C.
Furches, S. L.	2 M. E.	118 Alexander, 4115	Winston-Salem, N. C.
Furr, C. M.	2 Cer. E.	116 Alexander, 4113	Oakboro, N. C.
Furr, W. L., Jr.	3 C. E.	136 Woodburn Rd.	Concord, N. C.
Futrell, A. W., Jr.	2 M. E.	331 Syme, 3595	Nashville, N. C.
Futrell, J. M.	2 Ag.	2211 Hope St.	Greensboro, N. C.
Futrelle, W. L., Jr.	1 Ag.	311 Syme, 3575	Wilmington, N. C.
Gabriel, P. L., Jr.	1 C. E.	3 Field House	Lincolnton, N. C.
Gaither, D. D.	2 E. E.	102 Turlington, 4201	Charlotte, N. C.
Gallagher, K. E., Jr.	1 Aero.	608 Polk St.	Raleigh, N. C.
Gallier, N. E.	1 Gen. E.	216 Becton, 3750	Goldsboro, N. C.
Gallins, J. G.	1 Arch.	302 Alexander, 4168	Winston-Salem, N. C.
Gamble, C. J.	1 Ch. E.	304 Bagwell, 3370	Kings Mtn., N. C.
Gardner, C. E.	1 Ag.	2708 Bedford Ave.	Raleigh, N. C.
Gardner, F. B., Jr.	2 Tex.	340 Alexander, 4199	Hendersonville, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Gardner, O. M., Jr.	3 Tex.	2405 Clark Ave.	Shelby, N. C.
Gardner, W. H., Jr.	1 Ch. E.	329 Becton, 3797	Edenton, N. C.
Garey, R. R.	1 Ch. E.	307 Becton, 3775	Wilmington, N. C.
Garinkel, Stanley	4 Tex.	1304 Hillsboro St.	Flushing, L. I.
Garland, L. D.	1 Tex.	210 Woodburn Rd.	Toccoa, Ga.
Garner, A. L., Jr.	1 Ag.	114 Horn St.	Roanoke Rapids, N. C.
Garrett, D. J.	1 Ag.	223 Hawthorne Rd.	Raleigh, N. C.
Garrison, J. W.	1 Arch.	914 Vance St.	Raleigh, N. C.
Garriss, C. D.	1 For.	2302 Clark Ave.	Edenton, N. C.
Gates, C. B.	3 C. E.	4 Ferndell Lane	Roxboro, N. C.
Gattis, C. D., Jr.	1 Aero.	212 Berry, 4319	Burlington, N. C.
Gayle, W. W.	3 Tex.	4 Ferndell Lane	Charlotte, N. C.
Geil, J. W., Jr.	4 Tex.	104 Logan Court	Lynbrook, N. Y.
Gelfman, H. L.	Aud.	Hotel Carolina, Box 1581	Springfield, Mass.
Geluso, F. R.	2 C. E.	12½ Horne St.	Brooklyn, N. Y.
Geluso, N. G.	4 Aero.	108 Watauga, 3008	Brooklyn, N. Y.
Gerard, A. P.	1 Ch. E.	6 Becton, 3808	Washington, N. C.
Getsinger, C. F., Jr.	3 Tex.	222 Hillcrest Rd.	Chevy Chase, Md.
Gibbs, A. H.	3 Tex.	229 Turlington, 4257	Enka, N. C.
Gibbs, J. D.	3 Aero.	130 Syme, 3530	Englehard, N. C.
Gibbs, N. M.	3 Tex.	21 Enterprise St.	New Bern, N. C.
Gibson, A. E., Jr.	4 Ch. E.	226 Becton, 3760	Greenville, N. C.
Gibson, H. M.	2 E. E.	507 Cutler St.	Laurinburg, N. C.
Gibson, P. J.	Aud.	201 Dixie Trail	Franklin, N. C.
Gibson, W. J.	3 Ind. A.	307 Syme, 3571	Gastonia, N. C.
Gibson, Z. T., Jr.	1 Ch. E.	2302 Hillsboro St.	Rockingham, N. C.
Gilbert, C. R.	2 Tex.	1304 Hillsboro St.	Boston, Mass.
Gilbert, R. B.	1 E. E.	204 Clark, 4413	Bolivia, N. C.
Gilbert, R. H.	2 Occ. Inf.	3106 Eton Rd.	Raleigh, N. C.
Gilbert, W. L., Jr.	3 E. E.	1720 Hillsboro St.	Statesville, N. C.
Gilbert, W. P.	2 Ag. Ed.	103 Syme, 3503	Grafton, N. C.
Giles, G. W.	5 M. E.	2618 Van Dyke	Raleigh, N. C.
Gillis, S. H.	1 M. E.	210 Woodburn Rd.	Charleston, W. Va.
Gilmore, C. M., Jr.	2 Ag.	207 Turlington, 4237	Greensboro, N. C.
Gilmore, Henry, Jr.	3 E. E.	120 Ashe Ave.	Fairhaven, Mass.
Ginnings, P. R.	3 Ch. E.	315 Turlington, 4277	Greensboro, N. C.
Githens, L. F.	2 For.	101 Alexander, 4101	Ashland, N. J.
Glaser, Melvin	1 Tex.	218 Bagwell, 3350	Bronx, N. Y.
Glass, C. F.	1 C. E.	102 Berry, 4302	Kannapolis, N. C.
Glass, F. W.	1 E. E.	102 Berry, 4302	Kannapolis, N. C.
Glazener, E. W.	4 Ag.	106 Welch, 3242	Brevard, N. C.
Glenn, J. M.	1 Aero.	231 Becton, 3675	Gatesville, N. C.
Glover, J. L.	1 E. E.	235 Turlington, 4261	Wilson, N. C.
Gluck, Howard	1 C. E.	1304 Hillsboro St.	Dallas, Texas
Gluck, R. L.	3 M. E.	1715 Park Dr.	Morristown, Tenn.
Godwin, C. H.	1 For.	331 Alexander, 4194	Tillman, S. C.
Godwin, J. L.	2 For.	333 Alexander, 4195	Tillman, S. C.
Godwin, J. W.	3 Arch. E.	103 Chamberlain St.	Wilmington, N. C.
Goforth, Mary E.	4 Tex.	111 Brooks Ave.	Charlotte, N. C.
Gold, C. D.	1 Tex.	25 Becton, 3826	Wilson, N. C.
Goldblatt, B. H.	1 Ag.	311 Berry, 4331	Providence, R. I.
Goldbloom, A. S.	1 Tex.	226 Alexander, 4155	Asheville, N. C.
Golding, H. L.	1 Ag.	212 Berry, 4319	New York, N. Y.
Golding, L. E.	4 Tex.	240 Alexander, 4166	New York City
Goldinger, H. J.	2 Tex.	230 Alexander, 4159	Los Angeles, Calif.
Goldman, Paul	4 Tex.	339 Alexander, 4199	New York, N. Y.
Goldstein, H. E.	4 Ag.	103 Watauga, 3003	New York, N. Y.
Goldston, H. J., Jr.	2 Aero.	330 Alexander, 4193	High Point, N. C.
Goldston, J. M.	1 Ch. E.	316 Becton, 3784	Concord, N. C.
Gooch, G. P.	1 Ag. Ed.	312 Chamberlain St.	Franklinton, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Gooch, W. A., Jr.	1 M. E.	112 Becton, 3712	Durham, N. C.
Goodman, A. S.	2 C. E.	115 Woodburn Rd., 5303	Asheville, N. C.
Goodman, H. W.	1 Ag.	116 Bagwell, 3316	Brooklyn, N. Y.
Goodman, L. G., Jr.	4 Arch. E.	21 Enterprise St.	Salisbury, N. C.
Goodrich, R. W., Jr.	1 Ch. E.	132 Becton, 3732	Winston-Salem, N. C.
Goodridge, E. N.	1 For.	125 Woodburn Rd.	Brooklyn, N. Y.
Goodrum, W. J.	3 Ch. E.	115 Watauga, 3015	Greenville, N. C.
Goodson, A. B.	3 E. E.	112 Welch, 3248	Mt. Olive, N. C.
Goodson, K. W.	3 Aero.	112 Welch, 3248	Mt. Olive, N. C.
Goodson, L. A., Jr.	4 Ag.	104 Gold, 3204	Danville, Va.
Googe, J. W.	1 Aero.	305 Becton, 3773	Winston-Salem, N. C.
Gordon, Allen	4 Tex.	237 Turlington, 4262	Paterson, N. J.
Gordon, B. P., Jr.	1 Aero.	115 Alexander, 4112	Hillsboro, N. C.
Gorter, F. E.	3 Ch. E.	312 Turlington, 4274	Enka, N. C.
Goslen, H. H.	3 Ch. E.	104 Alexander, 4104	Kernersville, N. C.
Gourdin, W. B.	1 C. E.	16 Maiden Lane	Kingstree, S. C.
Gower, H. D.	2 Ag.	21 Syme, 3617	Smithfield, N. C.
Grady, H. F.	4 Ag.	109 Welch, 3245	Seven Springs, N. C.
Grady, S. L.	1 Ag.	122 Becton, 3722	Kenansville, N. C.
Gragg, C. E., Jr.	1 Aero.	22 Becton, 3823	Lenoir, N. C.
Graham, H. L., Jr.	3 Ch. E.	102 Alexander, 4102	Goldsboro, N. C.
Graham, J. R., Jr.	1 Aero.	Withdrew	Charlotte, N. C.
Grant, H. W.	1 E. E.	101 Becton, 3701	Selma, N. C.
Grant, M. W.	2 Ag. Ed.	104 Fourth, 3114	Garysburg, N. C.
Gratz, H. F.	1 Tex.	314 Becton, 3782	New York, N. Y.
Gratz, Morris	1 Tex.	321 Bagwell, 3387	New York, N. Y.
Graves, W. G.	4 Aero.	1620 Hillsboro St.	Mebane, N. C.
Green, D. H.	2 Ch. E.	712 W. North St.	Raleigh, N. C.
Green, E. C., Jr.	1 Aero.	5 Becton, 3807	Durham, N. C.
Green, L. W.	2 M. E.	321 Alexander, 4184	Wilmington, N. C.
Green, Morris	4 For.	308 Watauga, 3044	New York, N. Y.
Greene, B. W.	3 Aero.	12 Horne St.	Elizabethtown, N. C.
Greene, G. P.	3 C. E.	317 Alexander, 4180	Boone, N. C.
Greene, J. F., Jr.	2 Ch. E.	204 Welch, 3252	Shelby, N. C.
Gregory, J. C.	1 C. E.	201 Syme, 3533	Zebulon, N. C.
Griffin, C. E., Jr.	2 Aero.	220 Syme, 3552	Oxford, N. C.
Griffin, M. L.	1 E. E.	120 Hillcrest Rd.	Rocky Mount, N. C.
Griffin, S. W.	3 Ch. E.	307 Welch, 3267	LaGrange, N. C.
Griffin, T. B.	1 Aero.	104 Berry, 4304	LaGrange, N. C.
Griffin, W. H., III	1 M. E.	233 Becton, 3767	Goldsboro, N. C.
Griffin, W. L.	1 Aero.	311 Becton, 3779	Gastonia, N. C.
Griffis, L. W., Jr.	1 Tex.	313 Berry, 4333	Buffalo, N. Y.
Griffith, W. S.	1 M. E.	2 Becton, 3804	Winston-Salem, N. C.
Grigg, D. T.	2 M. E.	Apt. 104, 401 S. McDowell	Gastonia, N. C.
Grigg, K. F.	1 Aero.	122 Bagwell, 3322	Lincolnton, N. C.
Griggs, C. F.	1 M. E.	224 Woodburn Rd.	Elizabeth City, N. C.
Groome, H. H.	1 Aero.	2404 Hillsboro St.	Greensboro, N. C.
Grose, J. A., Jr.	2 Ag.	5 Syme, 3601	Forest City, N. C.
Gross, D. L.	2 E. E.	320 Turlington, 4282	Great Neck, N. Y.
Gross, R. E.	4 Ch. E.	115 Woodburn Rd.	Asheville, N. C.
Grosse, E. H.	4 Tex.	2407 Clark Ave.	Greensboro, N. C.
Guba, F. A., Jr.	4 Ind. E.	2407 Clark Ave.	Westfield, N. J.
Gulley, A. B.	1 M. E.	227 Bagwell, 3359	Nashville, N. C.
Gunn, K. M.	3 Ch. E.	132 Woodburn Rd.	Greensboro, N. C.
Gupton, B. E.	1 C. E.	316 Bagwell, 3382	High Point, N. C.
Gurganious, J. T.	1 Ag. Ed.	A Berry, 4344	Atkinson, N. C.
Gustafson, Richard	1 Ch. E.	204 Becton, 3738	Biltmore, N. C.
Guthrie, T. L.	1 E. E.	224 Bagwell, 3356	Vanceboro, N. C.
Guyton, R. D., Jr.	2 Cer. E.	1003 W. Peace St.	Raleigh, N. C.
Gwyn, N. H., Jr.	3 E. E.	103 Chamberlain St.	Lenoir, N. C.

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Gyles, R. C.	4 E. E.	132 Woodburn Rd.	Raleigh, N. C.
Hagan, M. L.	2 Tex.	1304 Hillsboro St.	New York, N. Y.
Hagler, J. J.	4 Ind. E.	Withdrew	Leaksville, N. C.
Hague, G. E.	1 Ch. E.	326 Bagwell, 3392	Westbrook, Me.
Hahn, J. E., Jr.	1 Tex.	Withdrew	Metuchen, N. J.
Hairston, Robert, III	1 Aero.	1417 Park Dr.	Raleigh, N. C.
Haislip, T. M.	3 Ag.	110 Gold, 3210	Oak City, N. C.
Hall, C. T., Jr.	2 Ag.	134 Woodburn Rd.	Woodsdale, N. C.
Hall, J. L.	4 Ch. E.	229 Syme, 3561	Grifton, N. C.
Hall, (Mrs.) Ruth B.	Aud.	1804 Sunset Dr.	Oberlin, Ohio
Hall, Theodore	1 Ag.	124 Syme, 3524	Mt. Vela, N. C.
Hall, W. L.	1 E. E.	230 Bagwell, 3362	Roxobel, N. C.
Halladay, W. J., Jr.	1 Aero.	1 Berry, 4334	Greensboro, N. C.
Hallenbeck, J. D.	1 M. E.	103 Berry, 4303	High Point, N. C.
Haltiwanger, J. C.	2 M. E.	210 Syme, 3542	Winston-Salem, N. C.
Hamilton, L. A., Jr.	1 Aero.	133 Becton, 3733	Columbia, S. C.
Hamilton, W. E.	1 M. E.	Withdrew	Winston-Salem, N. C.
Hammond, R. K.	2 Ag.	109 Alexander, 4107	Farmer, N. C.
Hamrick, C. R.	1 E. E.	17 Becton, 3819	Burnsville, N. C.
Hamrick, G. T.	3 Ag.	5 Syme, 3601	Forest City, N. C.
Hamrick, J. C.	2 Occ. Inf.	3410 Hillsboro St.	Raleigh, N. C.
Hancock, D. H.	2 C. E.	10 Enterprise St.	Lawrence, Mass.
Hancock, R. G.	1 Aero.	224 Becton, 3758	Goldston, N. C.
Hanes, C. D.	1 Ag. Ed.	309 Bagwell, 3375	Jonesville, N. C.
Hannon, M. J.	2 Occ. Inf.	312 Watauga, 3048	Manchester, Mass.
Hansen, E. R.	1 Ch. E.	4 Maiden Lane	Bridgeton, N. C.
Hansen, J. T.	4 Ag.	110 Welch, 3246	Raleigh, N. C.
Harbison, J. J.	2 C. E.	2508 Vanderbilt Ave.	Morganton, N. C.
Hardaway, T. A.	3 Ch. E.	103 Chamberlain St.	Arcadia, S. C.
Hardee, J. H.	2 For.	331 Alexander, 4193	High Point, N. C.
Hardesty, W. G.	1 Ag.	330 Bagwell, 3396	Newport, N. C.
Hardin, J. D.	4 Tex.	238 Turlington, 4263	Hickory, N. C.
Hardison, H. A.	2 Ag.	303 Gold, 3227	Williamston, N. C.
Hardy, J. H.	1 M. E.	213 Watauga, 3031	Snow Hill, N. C.
Harkey, W. T.	2 Aero.	106 Logan Court	Alexandria, Va.
Harmon, A. D.	4 Aero.	2306 Hillsboro St.	Kannapolis, N. C.
Harmon, H. V.	1 Ag.	208 Clark, 4417	Ahoskie, N. C.
Harper, C. B.	2 Ch. E.	109 Turlington, 4206	High Point, N. C.
Harper, R. N.	3 Ag.	227 W. Edenton St.	Raleigh, N. C.
Harper, W. W.	3 C. E.	207 Fourth, 3125	Tarboro, N. C.
Harrell, B. C.	1 Aero.	107 Bagwell, 3307	Marshville, N. C.
Harrelson, C. B., Jr.	1 Ag.	309 Bagwell, 3375	Cherryville, N. C.
Harrelson, W. G.	1 Aero.	102 Gold, 3202	Whiteville, N. C.
Harren, J. S.	2 Tex.	430 Alexander, 4199	Newton, N. C.
Harrington, B. D.	2 Ch. E.	105 Welch, 3241	Charlotte, N. C.
Harrington, R. L.	1 Gen. E.	15 Becton, 3817	Goldsboro, N. C.
Harris, A. P.	2 Tex.	230 Alexander, 4159	Los Angeles, Calif.
Harris, A. R.	1 For.	228 Bagwell, 3360	Moorestown, N. J.
Harris, B. B.	1 Ag. Ed.	222 Bagwell, 3354	Spring Hope, N. C.
Harris, C. M.	1 C. E.	18 Horne St.	Greensboro, N. C.
Harris, D. W.	5 Ag.	1 Syme, 3597	Newell, N. C.
Harris, G. K.	1 Ag. Ed.	222 Bagwell, 3354	Spring Hope, N. C.
Harris, H. R.	3 Tex.	115 Woodburn Rd.	Lynnhaven, Va.
Harris, J. R.	2 Tex.	123 Alexander, 4118	Washington, N. C.
Harris, K. F.	1 Ch. E.	330 Syme, 3594	Dallas, N. C.
Harris, P. C.	4 C. E.	202 Watauga, 3020	Essex, N. C.
Harris, P. T.	1 Tex.	2202 Hillsboro St.	Roanoke Rapids, N. C.
Harris, W. S.	3 Ag.	8 Ferndell Lane	Fayetteville, N. C.
Harrison, R. P.	1 Ch. E.	215 Bagwell, 3347	Kinston, N. C.
Hart, L. H., Jr.	1 C. E.	228 Becton, 3762	Goldsboro, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Hart, T. R., Jr.	1 Arch.	501 W. Whitaker Mill Rd.	Raleigh, N. C.
Hartsock, C. M., Jr.	3 For.	Box 2277	Raleigh, N. C.
Hartsoe, J. D.	2 Ch. E.	302 Syme, 3566	Weldon, N. C.
Hartzog, L. S.	3 Ind. E.	1 Gym	Lexington, N. C.
Harvey, A. M.	2 Tex.	1720 Hillsboro St.	Lincolnton, N. C.
Harwell, J. D.	1 Tex.	2705 Vanderbilt Ave.	Winston-Salem, N. C.
Hash, L. J.	3 Aero.	2 Syme, 3598	Piney Creek, N. C.
Hassell, A. M.	2 E. E.	218 Watauga, 3036	Spindale, N. C.
Hassell, J. L., Jr.	3 Aero.	123 Syme, 3523	Edenton, N. C.
Hassell, S. J.	2 Ag.	303 Alexander, 4169	Roper, N. C.
Hassinger, S. H., Jr.	1 Aero.	1924 Alexander Rd.	Raleigh, N. C.
Haughton, W. F.	2 Aero. E.	337 Alexander, 4197	Franklyn Sq., N. Y.
Hawkins, E. D.	4 M. E.	Power Plant, 5241	Murphy, N. C.
Hawkins, R. M.	1 Aero.	114 Alexander, 4111	Walkertown, N. C.
Hawley, Addison, Jr.	4 Cer. E.	116 Syme, 3516	Goldsboro, N. C.
Hay, O. P., Jr.	2 Gen. E.	105 Glenwood Ave.	Raleigh, N. C.
Hayden, C. C.	4 Tex.	2514 Clark Ave.	Charlotte, N. C.
Hayes, W. R., Jr.	3 Aero.	103 Welch, 3239	Norlina, N. C.
Haynes, M. B., Jr.	2 E. E.	103 Chamberlain St.	Asheville, N. C.
Hecht, O. R.	3 Ag. Ed.	2220 Hillsboro St.	Norlina, N. C.
Hecht, W. J., Jr.	3 Ch. E.	211 Watauga, 3029	Norlina, N. C.
Hedrick, C. L.	4 Tex.	238 Turlington, 4263	Cary, N. C.
Hedrick, R. W.	2 Gen. E.	9 Syme, 3605	Bailey, N. C.
Heffernan, J. A.	3 C. E.	315 Alexander, 4178	New York, N. Y.
Hege, C. L.	1 Ag. Ed.	210 Clark, 4419	Advance, N. C.
Helms, V. T., Jr.	2 Ag. Ed.	311 Welch, 3271	Monroe, N. C.
Helsobeck, R. E.	2 Aero.	2708 Everette Ave.	Winston-Salem, N. C.
Helton, E. H.	3 Aero.	306 Welch, 3266	Timberland, N. C.
Henderson, A. L.	1 E. E.	220 Bagwell, 3352	Monroe, N. C.
Henderson, F. M.	5 Ag.	8½ Maiden Lane	Wilmington, N. C.
Henderson, J. W.	2 Ch. E.	205 Alexander, 4137	Lumberton, N. C.
Henderson, T. C.	3 Ag. Ed.	204 Welch, 3252	Lake Toxaway, N. C.
Hendren, W. C., Jr.	1 Ag.	103 Gold, 3203	Carthage, N. C.
Hendrick, C. M.	1 Tex.	316 Becton, 3784	Cliffside, N. C.
Hendricks, F. B., Jr.	3 C. E.	215 Syme, 3547	Charlotte, N. C.
Hendricks, J. W.	3 Tex.	2405 Clark Ave.	Statesville, N. C.
Hennessee, W. E., Jr.	1 E. E.	223 Alexander, 4152	Salisbury, N. C.
Henson, G. C., Jr.	1 Ch. E.	Gym	Raleigh, N. C.
Hepler, J. S.	2 Aero.	109 Welch, 3245	Greensboro, N. C.
Heritage, T. P.	3 C. E.	115 Woodburn Rd.	Burlington, N. C.
Herring, D. P.	1 Ag. Ed.	115 Turlington, 4212	Dudley, N. C.
Herring, R. K.	1 M. E.	117 Becton, 3717	Clinton, N. C.
Hetherington, I. J., Jr.	4 M. E.	103 Watauga, 3003	Baltimore, Md.
Heughan, G. P.	2 M. E.	209 Turlington, 4238	Charlotte, N. C.
Heyward, R. M.	1 Aero.	2811 Barmettler St.	Goldsboro, N. C.
Hiatt, L. D.	1 C. E.	19 Becton, 3820	Thomasville, N. C.
Hicks, A. H., Jr.	1 Aero.	102 Bagwell, 3302	Fayetteville, N. C.
Hiers, J. T., III	1 C. E.	18½ Horne St.	Wilmington, N. C.
Higgins, J. L.	1 Ch. E.	Route No. 1	Cary, N. C.
High, S. C., Jr.	4 Ind. A.	1033 W. South St.	Raleigh, N. C.
Hilditch, W. J.	3 Ch. E.	123 Forest Rd.	Niagara Falls, N. Y.
Hilker, E. F., Jr.	3 M. E.	1926 St. Mary's St.	Raleigh, N. C.
Hill, B. F.	4 Aero.	116 Watauga, 2016	Murfreesboro, N. C.
Hill, C. U., Jr.	3 Tex.	2514 Clark Ave.	Greensboro, N. C.
Hill, E. L.	1 E. E.	332 Bagwell, 3398	Timberlake, N. C.
Hill, H. F.	1 Ag.	6 Berry, 4339	Asheboro, N. C.
Hill, R. H.	1 E. E.	108 Fourth, 3118	Richlands, N. C.
Hilles, D. L.	3 M. E.	123 Forest Rd.	Upper Darby, Pa.
Hilton, P. F.	2 Gen. E.	6 Ferndell Lane	Merchantville, N. J.
Hines, A. K.	1 Ag.	207 Clark, 4416	Enfield, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Hines, D. H.	1 C. E.	5½ Dixie Trail	Wilmington, N. C.
Hinkle, R. C.	2 Ch. E.	322 Syme, 3586	Lexington, N. C.
Hinkle, W. P.	4 M. E.	211 Gold, 3223	Thomasville, N. C.
Hinnant, C. P.	2 Aero.	309 Gold, 3233	Clayton, N. C.
Hinshaw, H. W.	3 For.	210 Syme, 3542	Winston-Salem, N. C.
Hinson, W. C.	3 Ag.	211 Syme, 3543	Walstonburg, N. C.
Hinton, R. S., Jr.	1 Tex.	Withdrew	Raleigh, N. C.
Hinton, W. W.	2 M. E.	10 Enterprise	Selma, N. C.
Hobbs, W. P.	1 Gen. E.	314 Forest Rd.	Raleigh, N. C.
Hobson, C. J.	3 Ag.	2 Syme, 3598	Boonville, N. C.
Hockaday, A. T.	1 Aero.	207 Bagwell, 3339	Roanoke Rapids, N. C.
Hockaday, L. R.	1 E. E.	106 Bagwell, 3306	Roanoke Rapids, N. C.
Hodges, B. D., Jr.	4 Tex.	2405 Clark Ave.	Greensboro, N. C.
Hodges, N. H., Jr.	3 E. E.	716 W. North St.	Raleigh, N. C.
Hodgin, W. H.	2 Ag.	330 Alexander, 4193	High Point, N. C.
Hoffman, H. B.	4 M. E.	18 Horne St.	Guilford College, N. C.
Hoffman, L. B.	3 M. E.	2513 Clark Ave.	Guilford College, N. C.
Hoffman, M. A.	5 Ag.	202 Fourth, 3120	Lebanon, Pa.
Hoke, J. R., Jr.	1 Tex.	7 Becton, 3809	Kannapolis, N. C.
Holadia, W. F.	1 M. E.	Withdrew	Aurora, N. C.
Holcombe, R. A.	3 For.	116 Forest Rd.	Teaneck, N. J.
Holding, L. F.	4 Gen. E.	211 W. Park Dr.	Raleigh, N. C.
Holland, C. D.	4 Ch. E.	3208 Clark Ave.	Hickory, N. C.
Holland, H. H.	4 Ag.	Infirmary	Charles, N. C.
Holland, J. C., Jr.	1 Aero.	2206 Whitaker Dr.	Raleigh, N. C.
Holleman, B. J.	2 Aero. E.	238 Alexander, 4164	Jacksonville, N. C.
Holler, L. W.	3 Ag. Ed.	311 Gold, 3252	Statesville, N. C.
Holliday, A. J.	2 Ag. Ed.	2220 Hillsboro St.	Jamesville, N. C.
Holliday, F. R., Jr.	4 M. E.	111 Watauga, 3011	Greensboro, N. C.
Holliday, J. E.	1 Ch. E.	202 Berry, 4309	Greensboro, N. C.
Holloman, E. K., Jr.	1 Aero.	331 Bagwell, 3797	Goldsboro, N. C.
Holloman, R. P.	3 Arch. E.	112 Watauga, 3012	Washington, N. C.
Holloway, C. H., Jr.	3 Arch. E.	2126 Country Club Dr.	Raleigh, N. C.
Holloway, J. S.	1 Cer. E.	2126 Country Club Dr.	Raleigh, N. C.
Holloway, M. E.	5 Ag.	2407 Stafford Ave.	Durham, N. C.
Holmes, Gabe, Jr.	1 Cer. E.	221 Alexander, 4150	Sanford, N. C.
Holmes, J. H.	1 Ch. E.	111 Glenwood Ave.	Hamlet, N. C.
Holmes, J. M.	1 Cer. E.	108 Clark, 4408	Sanford, N. C.
Holmes, T. N., Jr.	1 Aero.	A Berry, 4344	Jonesboro, N. C.
Holt, T. F.	1 Ag.	324 Alexander, 4187	Graham, N. C.
Holton, W. J.	1 Aero.	Route No. 4, Raleigh, N. C.	New Bern, N. C.
Holtzclaw, R. W.	2 M. E.	213 Watauga, 3031	Canton, N. C.
Honeycutt, S. G.	2 Ag.	Greenhouse, 5254	Clinton, N. C.
Hook, W. W., Jr.	3 For.	4 Ferndell Lane	Charlotte, N. C.
Hoover, G. R.	2 Aero.	118 Turlington, 4215	Winston-Salem, N. C.
Hoover, R. C., Jr.	4 M. E.	4 Ferndell Lane	Concord, N. C.
Hopper, J. W., Jr.	2 Arch.	117 Syme, 3517	Leaksville, N. C.
Hord, E. T., Jr.	2 Tex.	2328 Byrd St.	Raleigh, N. C.
Horne, C. O., Jr.	4 E. E.	129 Syme, 3529	Greenville, N. C.
Horne, E. G., Jr.	1 M. E.	305 Becton, 3773	Winston-Salem, N. C.
Horne, H. J., Jr.	1 Ch. E.	206 Bagwell, 3338	Roanoke Rapids, N. C.
Horowitz, Melvin	2 Tex.	136 Woodburn Rd.	New York, N. Y.
Horowitz, Wilbur	4 Tex.	340 Turlington, 4298	New York, N. Y.
Horton, J. S.	4 Tex.	1708 Park Dr.	Raleigh, N. C.
Horton, K. L., Jr.	1 Aero.	604 Hargett St.	Raleigh, N. C.
Hosmer, A. V., V.	1 Ch. E.	224 Turlington, 4252	Charlotte, N. C.
Houston, R. S., Jr.	2 Ch. E.	222 Hillcrest Rd.	Monroe, N. C.
Howard, C. M., Jr.	1 Tex.	308 Berry, 4328	Concord, N. C.
Howard, P. N., Jr.	3 C. E.	12½ Horne St.	Charlotte, N. C.
Howard, R. O.	4 M. E.	211 Bagwell, 3343	New Castle, Del.



<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Howe, A. L.	3 E. E.	10 Enterprise St.	Sanborn, N. Y.
Howell, E. K.	2 E. E.	229 Syme, 3561	Swannanoa, N. C.
Hoyle, G. D., Jr.	2 Ch. E.	225 Turlington, 4253	Charlotte, N. C.
Hubbard, Emmitt	1 E. E.	8 Ferndell Lane	Snow Hill, N. C.
Hubbard, S. A.	1 M. E.	2813 Hillsboro St.	Fayetteville, N. C.
Huddleston, S. W., III	2 Aero.	312 Turlington, 4274	Asheville, N. C.
Huff, R. L.	1 C. E.	136 Woodburn Rd.	Fayetteville, N. C.
Huff, W. B.	3 Ag.	207 Syme, 3539	Mars Hill, N. C.
Huffman, E. L.	1 Ind. E.	108 Bagwell, 3308	Hickory, N. C.
Huffstetler, C. Q., Jr.	1 E. E.	132 Bagwell, 3332	Gastonia, N. C.
Huffstetler, S. H.	3 M. E.	209 Clark, 4418	Haw River, N. C.
Hughes, T. M., Jr.	4 Ch. E.	114 Watauga, 3014	Wilson, N. C.
Hultz, B. E.	3 Aero.	136 Turlington, 4231	Winston-Salem, N. C.
Humphrey, A. L., Jr.	2 E. E.	Power Plant, 5241	Warsaw, N. C.
Humphrey, C. W.	5 Ag.	1712 Arlington St.	Raleigh, N. C.
Humphrey, J. M.	2 Ag.	337 Alexander, 4197	Shannon, N. C.
Humphreys, H. W.	4 C. E.	118 Watauga, 3018	Roanoke Rapids, N. C.
Humphreys, Milton	1 E. E.	106 Horne St.	Roanoke Rapids, N. C.
Hunnings, L. D., Jr.	4 Ag.	203 Syme, 3535	New Bern, N. C.
Hunt, G. D.	1 Ag. Ed.	218 Becton, 3752	Dallas, N. C.
Hunt, R. L., Jr.	4 Ag.	204 Syme, 3536	Lattemore, N. C.
Hunter, D. H.	1 C. E.	2211 Hope St.	Raleigh, N. C.
Hunter, F. C.	4 E. E.	525 N. East St.	Raleigh, N. C.
Hunter, H. N.	1 Aero.	308 Bagwell, 3374	Charlotte, N. C.
Huntler, R. W.	1 Tex.	214 Turlington, 4242	Wadesboro, N. C.
Hurst, J. R.	2 Ch. E.	134 Turlington, 4229	Hubert, N. C.
Huss, A. R.	1 Ag. Ed.	2202 Hillsboro St.	Lincolnton, N. C.
Hyers, R. D.	2 Gen. E.	1720 Hillsboro St.	Morristown, N. J.
Illo, F. L.	2 Gen. E.	240 Turlington, 4265,	Atlantic Highlands, N. J.
Imershein, C. J.	1 M. E.	216 Becton, 3750	Hewlett, N. Y.
Ingram, T. J.	2 Tex.	107 Alexander, 4106	Lilesville, N. C.
Inscoe, L. S., Jr.	2 M. E.	238 Alexander, 4164	Nashville, N. C.
Ireland, N. S.	2 M. E.	205 Gold, 3217	Pleasantville, N. J.
Isenhour, R. B.	2 Ch. E.	211 Turlington, 4239	Charlotte, N. C.
Ivey, James	1 M. E.	308 Becton, 3776	Graham, N. C.
Ivey, R. W.	1 Tex.	117 Becton, 3717	Burlington, N. C.
Ivey, W. R., Jr.	4 Tex.	4 Ferndell Lane	Charlotte, N. C.
Ivie, B. E., Jr.	4 M. E.	116 Watauga, 3016	Leaksville, N. C.
Jackson, C. C.	4 Ag.	24 Syme, 3620	Dunn, N. C.
Jacobus, D. M.	1 Tex.	1304 Hillsboro St.	Englewood, N. J.
Jacoby, A. H.	2 Aero. E.	1304 Hillsboro St.	New York, N. Y.
James, G. B.	3 Ag. Ed.	209 Welch, 3257	Oakboro, N. C.
James, M. D., Jr.	2 Tex.	123 Alexander, 4118	Wilson, N. C.
James, T. G.	1 M. E.	14 W. Dixie Dr.	Raleigh, N. C.
James, W. G.	2 E. E.	115 Woodburn Rd.	Parmele, N. C.
Jarrell, R. K.	3 M. E.	303 Gold, 3227	Charlotte, N. C.
Jarvis, W. W., Jr.	2 Ag.	206 Gold, 3218	Moyock, N. C.
Jauss, R. S.	1 E. E.	306 Becton, 3774	Beaufort, N. C.
Jaworski, H. J.	2 Aero.	1718 Park Dr.	Rochester, N. Y.
Jeffreys, V. L.	5 Ag.	1115 Hillsboro St.	Hamlet, N. C.
Jenkins, A. T.	1 Ag. Ed.	226 Chamberlain	Conway, N. C.
Jenkins, H. G.	1 Aero.	210 Bagwell, 3342	Mt. Airy, N. C.
Jennings, R. B.	1 E. E.	106 Horne St.	Canton, N. C.
Jenrette, Addison	4 Ag.	128 Syme, 3528	Ash, N. C.
Jernigan, H. E.	1 Aero.	222 Alexander, 4151	Dunn, N. C.
Jerome, F. D., Jr.	3 E. E.	217 Turlington, 4245	Pittsboro, N. C.
Jessup, B. L., Jr.	1 Arch.	321 Turlington, 4283	Concord, N. C.
Jobe, A. P.	4 Ag. Ed.	23 Logan Court	Rutherfordton, N. C.
Jobe, H. R.	4 Ch. E.	231 Syme, 3563	Burlington, N. C.

## NORTH CAROLINA STATE COLLEGE

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Johns, B. R.	3 Arch. E.	306 Gold, 3230	Richmond, Va.
Johns, J. V.	2 Ch. E.	2 Gym	Asheville, N. C.
Johnson, A. M., Jr.	4 E. E.	14 Syme, 3610	Clayton, N. C.
Johnson, B. L.	2 E. E.	202 Alexander, 4134	Lexington, N. C.
Johnson, D. M.	1 M. E.	202 Clark, 4411	Bunn, N. C.
Johnson, George Pilkington	1 Ch. E.	105 Clark, 4405	Pittsboro, N. C.
Johnson, Glenwood Preston	2 Aero.	109 Turlington, 4206	Goldsboro, N. C.
Johnson, G. R.	1 Aero.	220 Becton, 3754	Willow Springs, N. C.
Johnson, H. M.	4 Ind. A.	Infirmary, 5575	Statesville, N. C.
Johnson, John Calvin	1 Ag. Ed.	223 Becton, 3757	Dunn, N. C.
Johnson, Joseph Calbert	1 Ag.	206 Clark, 4415	Four Oaks, N. C.
Johnson, J. E., Jr.	4 Ag. Ed.	203 Gold, 3215	Catawba, N. C.
Johnson, James Garfield	3 M. E.	Apt. F-3, Grosvenor Gardens	Inman, S. C.
Johnson, James Gaston	3 Aero.	206 Welch, 3254	Rocky Mount, N. C.
Johnson, J. T.	2 Ag.	1601 St. Mary's St.	Raleigh, N. C.
Johnson, M. B.	2 Aero.	316 Alexander, 4179	Bahama, N. C.
Johnson, S. W.	1 Aero.	323 Becton, 3791	Gibson, N. C.
Johnson, William Lee	1 Aero.	216 Alexander, 4145	Stokesdale, N. C.
Johnson, William Leon, Jr.	1 Aero.	24 Becton, 3825	Smithfield, N. C.
Johnston, D. H.	1 Aero.	129 Becton, 3729	Roper, N. C.
Jolliff, R. B.	1 Aero.	6 Field House	Smithfield, N. C.
Jones, C. E.	2 M. E.	Gym, 5061	Tarboro, N. C.
Jones, C. R., Jr.	1 E. E.	130 Woodburn Rd.	Milton, N. C.
Jones, D. W.	3 Ag. Ed.	204 Syme, 3536	Boiling Springs, N. C.
Jones, G. E.	3 Tex.	314 Syme, 3578	New Bern, N. C.
Jones, G. L.	3 Ag.	210 Watauga, 3028	Kinston, N. C.
Jones, G. M.	1 E. E.	2306 Hillsboro St.	Hamlet, N. C.
Jones, G. N., Jr.	4 Aero.	207 Glascock St.	Raleigh, N. C.
Jones, G. W.	3 Ind. A.	203 Watauga, 3021	Roxboro, N. C.
Jones, J. C.	2 For.	329 Turlington, 4291	Pittsboro, N. C.
Jones, James Henry	1 Gen. E.	125 Becton, 3725	Charlotte, N. C.
Jones, Joseph Henry, Jr.	3 Ch. E.	321 Syme, 3585	Jersey City, N. J.
Jones, J. S., Jr.	1 C. E.	126 Alexander, 4121	Ridgeway, N. C.
Jones, M. deB., Jr.	2 Ch. E.	4 Fernell Lane	Charlotte, N. C.
Jones, R. A.	1 Ag.	312 Becton, 3780	Winston-Salem, N. C.
Jones, R. M.	3 Ch. E.	103 Alexander, 4103	Salisbury, N. C.
Jones, R. W.	1 Aero.	919 W. Johnson St., 5143	Pelham, N. C.
Jones, S. G., Jr.	1 Aero.	209 Berry, 4316	Asheville, N. C.
Jones, T. A.	2 Ind. E.	124 Turlington, 4221	Charlotte, N. C.
Jones, W. N.	1 E. E.	803 N. Person St.	Raleigh, N. C.
Jordan, H. K.	3 M. E.	1720 Hillsboro St.	Charlotte, N. C.
Jordan, H. L.	3 Ag.	210 Watauga, 3028	Clarkton, N. C.
Josephson, B. H.	1 Ch. E.	132 Bagwell, 3332	Weldon, N. C.
Josselson, B. E.	1 Aero.	205 Forest Rd.	Ahoskie, N. C.
Joyce, J. H.	2 Occ. Inf.	338 Alexander, 4189	Long Branch, N. J.
Joyce, W. R.	1 Ch. E.	230 Bagwell, 3362	Tobaccoville, N. C.
Joyner, H. V.	1 Aero.	Withdrew	Raleigh, N. C.
Joyner, I. E.	2 M. E.	107 Turlington, 4205	Zebulon, N. C.
Joyner, J. A.	4 E. E.	223 Alexander, 4152	Sharpsburg, N. C.
Justice, J. P.	2 Ind. E.	320 Turlington, 4282	Pittsboro, N. C.
Kabakow, H. M.	2 Ag.	211 Hawthorne Rd.	Bronx, N. Y.
Kaczynski, Henry	3 For.	230 Turlington, 4258	Trenton, N. J.
Kahn, C. H.	1 Aero.	335 Turlington, 4295	Concord, N. C.
Kahn, H. B.	1 C. E.	4 Becton, 3806	Columbia, S. C.
Kahn, Max	2 E. E.	216 Alexander, 4145	Baltimore, Md.
Kahn, S. N.	2 M. E.	Withdrew	Asheville, N. C.
Kaplan, Morton	2 Tex.	212 Turlington, 4240	Forest Hills, N. Y. C.
Kapner, Lawrence	2 C. E.	322 Turlington, 4290	New York, N. Y.
Katkaveck, L. F.	1 Aero.	10 Field House	Manchester, Conn.
Katz, M. B.	4 Ag.	1304 Hillsboro St.	Morganton, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Katz, S. S.	2 Aero.	324 Turlington, 4286	Newark, N. J.
Katzenoff, Robert	3 Ch. E.	338 Turlington, 4297	New York, N. Y.
Kearney, B. E.	1 M. E.	A-1 Clark, 4422	Oxford, N. C.
Kearney, J. H.	4 Ag. Ed.	305 Gold, 3229	Franklinton, N. C.
Keeler, M. G., Jr.	3 E. E.	2513 Clark Ave.	Fayetteville, N. C.
Keels, H. F.	1 Ch. E.	2404 Hillsboro St.	Greensboro, N. C.
Keen, E. R.	2 Ag. Ed.	202 Welch, 3250	Newton Grove, N. C.
Kehlmann, Martin	2 Aero.	219 Turlington, 4247	New York, N. Y.
Keller, G. H.	1 Aero.	216 N. Bloodworth St.	Raleigh, N. C.
Kelley, A. Y., Jr.	3 Gen. E.	311 Hillcrest Rd.	Raleigh, N. C.
Kelly, J. F.	4 C. E.	106 Watauga, 3006	Rowland, N. C.
Kelly, R. S.	4 E. E.	113 Watauga, 3013	Laurel Hill, N. C.
Kelly, R. W.	3 M. E.	2513 Clark Ave.	Long Island, N. Y.
Kelly, R. Y.	1 Tex.	217 Becton, 3751	Gastonia, N. C.
Kelly, W. F.	2 Tex.	311 Hillcrest Rd.	Raleigh, N. C.
Kelman, Arthur	5 Ag.	2804 Hillsboro St.	Providence, R. I.
Kennedy, F. S.	1 M. E.	130 Hawthorne Rd.	Thomasville, N. C.
Kennison, R. W., Jr.	1 Aero.	210 Pace St.	Raleigh, N. C.
Kenyon, J. T.	2 Aero.	412 Dixie Trail.	Raleigh, N. C.
Kerr, F. M.	1 Aero.	117 Bagwell, 3317	Charlotte, N. C.
Kerr, G. T., Jr.	1 Aero.	2513 Clark Ave.	Durham, N. C.
Kestler, R. B., Jr.	2 Aero.	124 Alexander, 4119	Statesville, N. C.
Ketchie, G. M., Jr.	4 C. E.	106 Watauga, 3006	Charlotte, N. C.
Keys, R. T., Jr.	1 E. E.	130 Forest Rd.	Florence, S. C.
Kidd, C. S.	1 Ag.	1707 Park Dr.	Dobson, N. C.
Kilby, C. H.	1 C. E.	322 Turlington, 4284	Milton, N. C.
Kilpatrick, R. H.	2 M. E.	326 Turlington, 4288	Greensboro, N. C.
King, C. S.	4 Ch. E.	302 Watauga, 3038	Charlotte, N. C.
King, F. M.	1 Tex.	No. 3, Swain Apt., N. Person	Raleigh, N. C.
King, J. C., Jr.	1 Aero.	209 Clark, 4418	Greensboro, N. C.
King, J. F., Jr.	2 Aero.	204 Alexander, 4136	Leaksville, N. C.
King, J. M., Jr.	1 M. E.	2402 Hillsboro St.	Greensboro, N. C.
Kirby, A. M., Jr.	3 Ch. E.	2407 Clark Ave.	Durham, N. C.
Kirby, H. T.	1 Gen. E.	201 Berry, 4308	Roxboro, N. C.
Kirby, T. E., Jr.	1 Gen. E.	1115 Hillsboro St.	Raleigh, N. C.
Kirk, W. T.	1 M. E.	312 Berry, 4332	Chapel Hill, N. C.
Kirkman, D. C.	1 Arch. E.	128 Becton, 3728	Pleasant Garden, N. C.
Kirkman, S. N.	2 E. E.	111 Welch, 3247	Pleasant Garden, N. C.
Kirkpatrick, J. F.	1 C. E.	326 Alexander, 4189	Greensboro, N. C.
Kiser, R. A.	4 Ag. Ed.	301 Syme, 3565	Kings Mtn., N. C.
Kitchin, J. L.	2 Tex.	2405 Clark Ave.	Scotland Neck, N. C.
Kittner, Harry	2 Ind. E.	307 Gold, 3231	Weldon, N. C.
Kivette, K. S. (Miss)	1 Aero.	F-201 Boylan Apts.	Raleigh, N. C.
Knee, D. A.	2 Ch. E.	228 Alexander, 4157	Charlotte, N. C.
Knight, R. G., Jr.	3 Ch. E.	115 Watauga, 3015	Roanoke Rapids, N. C.
Knott, C. J.	1 C. E.	204 Clark, 4413	Oxford, N. C.
Knott, E. J.	1 Ag.	2008 Hillsboro St.	Clarksville, Va.
Knox, E. L.	4 Ag.	12 Syme, 3608	Kelford, N. C.
Knudsen, A. R.	5 Ag.	201½ Park Ave.	Raleigh, N. C.
Koonce, Jack	1 Aero.	332 Becton, 3800	Jacksonville, N. C.
Koonce, T. R.	2 C. E.	321 Syme, 3585	Fair Bluff, N. C.
Korbler, G. F.	1 M. E.	Power Plant	Charlotte, N. C.
Kornegay, C. E.	1 Ag.	16 Enterprise St.	Mt. Olive, N. C.
Kornegay, S. D.	4 Ag. Ed.	309 Becton, 3777	Mt. Olive, N. C.
Koury, E. W.	3 Tex.	14 Horne St., Apt. B	Burlington, N. C.
Kraetz, Howard	3 Aero.	304 Gold, 3228	Brooklyn, N. Y.
Krueger, W. L.	1 Tex.	2514 Clark Ave.	Charlotte, N. C.
Kuhn, C. R.	3 Tex.	500 Devereaux St.	Raleigh, N. C.
Kuwaski, B. P.	4 Tex.	239 Alexander, 4165	New Bedford, Mass.
Kwiatkoski, J. D.	2 C. E.	221 Syme, 3553	Jeannette, Pa.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Kyles, H. B., Jr.	1 M. E.	113 Becton, 3713	Asheville, N. C.
Lackey, D. W.	3 Ag.	125 Syme, 3525	Lenoir, N. C.
Lamb, R. J., Jr.	1 C. E.	21 Becton, 3822	Whiteville, N. C.
Lambe, C. M., Jr.	5 Cer. E.	413 Calvin Rd.	Raleigh, N. C.
Lambeth, J. B.	3 C. E.	16 Enterprise St.	High Point, N. C.
Lamm, J. A., Jr.	2 E. E.	304 Alexander, 4170	Alexandria, Va.
Lamm, J. R.	2 Arch.	2405 Clark Ave.	Wilson, N. C.
Lamprinakos, G. J.	1 Ch. E.	2220 Hillsboro St.	Asheville, N. C.
Lamson, R. W.	2 C. E.	112 Alexander, 4109	Asheville, N. C.
Lancaster, D. B.	1 Aero.	17 Enterprise St.	Louisburg, N. C.
Landau, G. H.	1 Tex.	234 Bagwell, 3366	Detroit, Mich.
Landen, L. T., Jr.	1 M. E.	112 Bagwell, 3312	Wilmington, N. C.
Lane, W. A.	4 Tex.	126 Becton, 3726	Greensboro, N. C.
Landey, L. C.	4 Ag.	9 Becton, 3811	Maiden, N. C.
Langley, G. E.	4 Aero.	110 Watauga, 3010	Norfolk, Va.
Langston, N. W.	1 M. E.	315 Becton, 3783	Four Oaks, N. C.
Lapeyre, K. P.	2 Ch. E.	237 Alexander, 4163	Jacksonville, Fla.
Lasley, C. M., Jr.	1 Ag.	119 Becton, 3719	Clemmons, N. C.
Lassiter, A. T.	4 Ag.	10 Enterprise St.	Clayton, N. C.
Latta, J. E.	1 Ag.	120 Bagwell, 3320	Durham, N. C.
Laughlin, R. C.	2 Ch. E.	1720 Hillsboro St.	Tarboro, N. C.
Laughridge, W. J., Jr.	1 Aero.	123 Bagwell, 3323	Rocky Mount, N. C.
Lauten, T. Z., Jr.	1 M. E.	330 Becton, 3798	Winston-Salem, N. C.
Lawing, W. J.	2 M. E.	104 S. Dawson	Charlotte, N. C.
Lawrence, L. M.	1 Tex.	707 Glenwood Ave.	Colerain, N. C.
Lawrence, L. R.	4 Arch. E.	315 Watauga, 3051	Portsmouth, Va.
Lawrence, R. D., Jr.	1 M. E.	220 E. North St.	Miami, Fla.
Lawrence, W. P., Jr.	1 M. E.	402 W. Whitaker Mill Rd.	Raleigh, N. C.
Lawson, W. D.	3 Ag.	305 Watauga, 3041	Norfolk, Va.
Lawson, W. H.	1 Tex.	202 Becton, 3736	Englewood, N. J.
Leak, H. L.	2 Tex.	214 Turlington, 4242	Rockingham, N. C.
Leak, R. P.	4 E. E.	2202½ Hope St.	Raleigh, N. C.
Leatherman, B. H.	1 Tex.	305 Berry, 4325	Lexington, N. C.
Ledford, H. E.	1 Ag. Ed.	209 Bagwell, 3341	Kings Mtn., N. C.
Ledford, R. B.	2 Gen. E.	2211 Oxford Rd.	Raleigh, N. C.
Lee, R. R. R.	2 Ag.	311 Gold, 3235	Clayton, N. C.
Lee, S. H.	1 Ag.	127 Becton, 3727	Pink Hill, N. C.
Leeper, J. S.	3 Tex.	104 Logan Court	Gastonia, N. C.
Lefler, D. F.	2 M. E.	225 Alexander, 4154	Albemarle, N. C.
Leggette, J. D.	1 For.	6 Becton, 3808	Washington, N. C.
LeGrand, H. E.	3 Tex.	119 Turlington, 4216	Shelby, N. C.
Lemlich, B. R.	3 Ag.	126 Syme, 3526	Brooklyn, N. Y.
Lemmond, C. Q.	3 E. E.	332 Syme, 3596	Monroe, N. C.
Lemmond, J. V.	3 E. E.	332 Syme, 3596	Monroe, N. C.
Lemon, A. C., Jr.	1 Ch. E.	2278 Circle Dr.	Raleigh, N. C.
Leonard, B. T.	2 M. E.	211 Alexander, 4140	Norfolk, Va.
Leonard, J. L.	1 M. E.	229 Turlington, 4257	Greensboro, N. C.
Leonard, P. B.	5 M. E.	2707 Kilgore St.	Centerburg, Ohio
Leveen, I. A.	4 Tex.	1304 Hillsboro St.	New York, N. Y.
Levin, R. E.	4 Tex.	120 Woodburn Rd.	Brooklyn, N. Y.
Levinson, David	1 Aero.	231 Alexander, 4160	Fairmont, N. C.
Levy, M. A.	3 Tex.	215 Turlington, 4243	Providence, R. I.
Lewis, Benjamin Franklin, Jr.	4 E. E.	206 Syme, 3538	Fountain, N. C.
Lewis, Brian Franklin	3 Ch. E.	103 Alexander, 4103	Hickory, N. C.
Lewis, C. E.	1 Ag. Ed.	325 Alexander, 4188	Rocky Point, N. C.
Lewis, E. D., Jr.	1 M. E.	333 Bagwell, 3399	Webster, N. C.
Lewis, E. E.	1 Ch. E.	2008 Hillsboro St.	Fairmont, N. C.
Lewis, G. T.	1 M. E.	219 Becton, 3753	Goldsboro, N. C.
Lewis, H. G.	4 Arch. E.	720 W. Lane St.	Morehead City, N. C.
Lewis, J. A.	2 M. E.	Withdrew	Bethlehem, Pa.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Lewis, J. L.	1 Ag. Ed.	214 Becton, 3748	Atkinson, N. C.
Lewis, L. D.	3 E. E.	232 Syme, 3564	Macclesfield, N. C.
Lewis, W. H.	1 Ag.	4 Field House	Scotland Neck, N. C.
Lewis, W. M.	3 Ag.	2710 Rosedale Ave.	Faison, N. C.
L'heureux, S. A.	1 Tex.	23 Becton, 3824	Marlboro, N. H.
Liggio, J. C.	1 C. E.	224 Woodburn Rd.	Bronx, N. Y.
Light, C. I.	4 M. E.	216 Watauga, 3034	Brooklyn, N. Y.
Liles, J. W.	1 Tex.	212 Bagwell, 3344	Zebulon, N. C.
Linder, J. L.	1 Aero.	115 Bagwell, 3315	Greensboro, N. C.
Lindsay, W. C., Jr.	1 M. E.	9-A Berry, 4344	Boger City, N. C.
Lineback, W. E.	4 Ch. E.	129 Syme, 3529	Winston-Salem, N. C.
Lineberger, R. B.	1 C. E.	134 Bagwell, 3402	Sherrill's Ford, N. C.
Lingle, A. W.	3 Ag. Ed.	209 Welch, 3257	Salisbury, N. C.
Linten, I. L.	4 M. E.	1304 Hillsboro St.	Newtonville, Mass.
Linville, J. D.	1 Tex.	116 Turlington, 4213	Kernersville, N. C.
Lipson, H. J.	1 Tex.	217 Bagwell, 3349	Brooklyn, N. Y.
Little, B. C.	2 Ag.	1814 Park Dr.	Raleigh, N. C.
Little, R. M.	2 M. E.	235 Alexander, 4162	Greensboro, N. C.
Liverman, A. B., Jr.	1 M. E.	4 Maiden Lane	Norfolk, Va.
Locklair, E. E.	2 Ch. E.	125 Woodburn Rd.	Snow Hill, N. C.
Lodor, J. C.	1 M. E.	329 Alexander, 4192	Wilmington, N. C.
Loewensberg, Walter	4 M. E.	216 Watauga, 3034	Baltimore, Md.
Loftin, W. D.	4 Ag.	210 Gold, 3222	Kinston, N. C.
Long, C. R.	4 C. E.	2713 Barmettler St., 5394	Roxboro, N. C.
Long, F. T.	1 Aero.	122 Bagwell, 3322	Hurdles Mill, N. C.
Long, L. W.	4 E. E.	108 Welch, 3244	Forest City, N. C.
Long, W. N.	4 Ch. E.	10 Enterprise St.	Roxboro, N. C.
Loughlin, H. M.	1 M. E.	3 Berry, 4336	Wilmington, N. C.
Love, G. R.	1 Aero.	224 Woodburn Rd.	Burlington, N. C.
Love, L. A., Jr.	1 Aero.	416 E. Hargett St.	Charlotte, N. C.
Lovette, L. J.	1 Aero.	8 Ferndell Lane	Graham, N. C.
Lovington, P. L.	1 Aero.	125 Woodburn Rd.	Hempstead, L. I., N. Y.
Low, D. N.	3 M. E.	Basement 1911, 5241	Burnsville, N. C.
Lowdermilk, R. S.	2 E. E.	322 Turlington, 4284	Mt. Gilead, N. C.
Lowe, Sidney	1 Arch.	2514 Clark Ave.	Newark, N. J.
Lowell, W. F., Jr.	1 Tex.	311 Turlington, 4273	Newton Center, Mass.
Lowery, J. B.	3 Tex.	102 Syme, 3502	New Bern, N. C.
Lov, J. P.	2 E. E.	218 Alexander, 4147	Burlington, N. C.
Lumsden, J. C.	3 Ch. E.	726 S. Boylan Ave.	Raleigh, N. C.
Lundberg, G. F., Jr.	3 Tex.	2411 Stafford	Chicago, Ill.
Lupton, B. W.	1 Aero. E.	130 Woodburn Rd.	Stonewall, N. C.
Lupton, H. E.	2 E. E.	214 Alexander, 4143	Bayboro, N. C.
Lupton, H. R.	1 Gen. E.	222 Park Ave.	Pantego, N. C.
Lutz, R. B.	4 For.	2004 Hillsboro St.	Norwalk, Conn.
Lyerly, R. L.	3 M. E.	230 Syme, 3562	Thomasville, N. C.
Lyle, J. A.	5 Ag.	Apt. C-1, Wilmont Apts.	Lexington, Ky.
Lynch, E. P., Jr.	1 Ch. E.	327 Bagwell, 3393	Charlotte, N. C.
Lynch, J. A.	3 Tex.	21 Enterprise St.	Erwin, N. C.
Lynch, W. R.	1 Arch. E.	329 Becton, 3797	Erwin, N. C.
Lyon, J. J.	1 Ag.	104 Becton, 3704	North Side, N. C.
McAlister, J. F.	3 Tex.	327 Syme, 3591	Biscoe, N. C.
McAllister, R. A.	2 Ch. E.	209 Alexander, 4139	Greensboro, N. C.
McAllister, R. M.	1 Aero.	707 W. Morgan St.	Raleigh, N. C.
MacArthur, J. P.	1 Ag.	323 Bagwell, 3389	Wakulla, N. C.
McBryde, C. O.	2 Aero.	126 Forest Rd.	Lakeview, N. C.
McCabe, A. M., Jr.	3 M. E.	2608 Lochmoor Dr.	Raleigh, N. C.
McCall, J. A.	1 Tex.	305 Bagwell, 3371	Reidsville, N. C.
McCall, T. C.	1 Ch. E.	2202 Hillsboro St.	Lake Toxaway, N. C.
McCall, T. M.	1 E. E.	2412 Everett Ave.	Barium Springs, N. C.
McCaskill, B. L.	1 Gen. E.	2402 Hillsboro St.	East Rockingham, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
McCaskill, H. L.	1 Gen. E.	319 Becton. 3787	Rockingham, N. C.
McCollum, J. F.	1 Tex.	126 Becton. 3726	Reidsville, N. C.
McCormick, D. S., Jr.	1 E. E.	308 Becton. 3776	Fayetteville, N. C.
McCormick, J. L.	2 Tex.	1 Field House	Sanford, N. C.
McCoy, W. J., Jr.	2 Aero.	324 Syme, 3588	Charlotte, N. C.
McCracken, W. R.	2 Ag. Ed.	224 Woodburn Rd.	Waynesville, N. C.
McCrary, C. E.	2 Ch. E.	104 Logan Court	Charlotte, N. C.
McCrary, O. F., Jr.	4 M. E.	127 Brooks Ave.	Raleigh, N. C.
McCurry, C. A.	1 Aero.	A Berry. 4344	Bee Log, N. C.
McDavid, F. R.	2 Aero.	128 Turlington. 4225	Sanford, N. C.
McDermott, J. M.	2 Aero.	120 Forest Rd.	Vass, N. C.
McDiarmid, S. N.	2 Arch. E.	115 Park Ave.	Shelby, N. C.
McDonald, P. H.	2 Gen. E.	122 Alexander. 4117	Carthage, N. C.
McDowell, F. H.	3 Ag.	301 Gold. 3225	Clyde, N. C.
McGhee, W. P.	2 Ind. E.	104 Logan Court	Crafton, Pa.
McGowan, J. G.	2 Ag.	2710 Rosedale Ave.	Faison, N. C.
McGowan, R. H.	1 Aero.	105 Becton. 3705	Hamlet, N. C.
McGrath, F. J., Jr.	2 Arch. E.	2 Field House	Morris Plains, N. J.
McGuire, T. A.	1 Ag. Ed.	105 Alexander. 4105	Norton, N. C.
MacIntyre, A. B.	4 E. E.	Avents Ferry Rd.	Raleigh, N. C.
McIntyre, R. D.	1 Tex.	211 Gold. 3223	Red Oak, N. C.
McKeel, C. B., III	1 E. E.	2004 Hillsboro St.	Charlotte, N. C.
McKenzie, H. L.	1 Ag. Ed.	108 Fourth. 3118	Laurinburg, N. C.
McKenzie, J. W., Jr.	2 Ag.	130 Alexander. 4125	Rockingham, N. C.
McKinne, Collin	4 E. E.	201 Welch. 3249	Louisburg, N. C.
McKinne, Philip	2 For.	17 Enterprise	Louisburg, N. C.
McKoin, C. C., Jr.	2 Aero.	115 $\frac{1}{2}$ Park Ave.	Thomasville, N. C.
MacLachlan, J. C., Jr.	1 Ch. E.	2114 Myrtle Ave.	Raleigh, N. C.
McLain, J. A., Jr.	1 Ind. E.	Withdrew	Statesville, N. C.
McLaughlin, F. W.	2 Ag.	307 Turlington. 4271	Mooresville, N. C.
McLaughlin, T. K.	2 Ch. E.	802 Hillsboro St.	Cleveland, N. C.
McLawhorn, R. H., Jr.	2 Ag.	304 Alexander. 4170	Winterville, N. C.
McLemore, C. H.	2 Aero.	13 Syme. 3609	Godwin, N. C.
McLeod, W. A., Jr.	4 Ag. Ed.	8 Syme. 3604	Sanford, N. C.
MacManus, F. E.	1 Tex.	126 Bagwell. 3326	Pelham Manor, N. Y.
McManus, M. M., Jr.	1 C. E.	114 Horne St.	Red Springs, N. C.
MacMillan, D. P.	2 Aero.	328 Alexander. 4191	Fayetteville, N. C.
McMillan, J. F.	1 Ch. E.	1410 Jackson St.	Raleigh, N. C.
McNair, C. R., Jr.	3 E. E.	306 Berry. 4326	Rockingham, N. C.
McNair, G. C.	1 Aero.	330 Becton. 3798	Winston-Salem, N. C.
McNeely, J. E., Jr.	2 Tex.	222 Hillcrest Rd.	Cooleemee, N. C.
McNeill, Alexander	1 Aero.	22 Becton. 3823	Wade, N. C.
McRainey, H. B.	1 M. E.	310 Bagwell. 3376	Fayetteville, N. C.
McRainey, J. T., Jr.	2 E. E.	231 Turlington. 4259	Lumberton, N. C.
McRorie, R. A.	2 Ch. E.	21 Enterprise St.	Statesville, N. C.
McVay, F. E.	5 Ag.	103 1911	Peace Dale, R. I.
Mabe, H. D., Jr.	1 Tex.	106 Horne St.	Kinston, N. C.
Mackie, A. B.	1 Ag.	123 Becton. 3723	Yadkinville, N. C.
Mackie, J. D.	3 Ag.	21 Syme. 3617	Yadkinville, N. C.
Macon, Nathaniel	2 Aero.	224 Alexander. 4153	New Bern, N. C.
Maddrey, W. S.	1 Gen. E.	211 Clark. 4420	Weldon, N. C.
Maddry, H. B.	3 C. E.	Avent Ferry Rd.	Raleigh, N. C.
Mahone, R. D.	2 For.	204 Watauga. 3022	Williamsburg, Va.
Main, E. W.	3 M. E.	310 Watauga. 3046	Delanco, N. J.
Majette, J. B., Jr.	2 Ch. E.	125 Woodburn Rd.	Como, N. C.
Mann, B. I.	2 Ag. Ed.	128 Alexander. 4123	Pendleton, N. C.
Mann, C. A.	1 C. E.	133 Bagwell. 3401	Washington, N. C.
Mann, L. A., Jr.	1 Ch. E.	111 Becton. 3711	Newport, N. C.
Manning, B. P.	1 Ag.	112 Becton. 3712	Tarboro, N. C.
Mannion, J. J.	2 For.	318 Alexander. 4181	Bronx, N. Y.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Mansius, C. A.	1 Ch. E.	3310 Pollock Pl.	Cheektowaga, N. Y.
Marcellino, William	3 Ch. E.	227 Turlington, 4255	New Bedford, Mass.
Margiotta, P. J., Jr.	1 Ag.	205 Bagwell, 3337	New Rochelle, N. Y.
Margolis, A. W.	2 Tex.	226 Turlington, 4254	Hendersonville, N. C.
Marks, A. S.	1 Ch. E.	201 Becton, 3735	Greensboro, N. C.
Marks, R. H.	4 Ch. E.	215 Watauga, 3033	Bronxville, N. Y.
Marsh, G. F.	1 Ag. Ed.	213 Woodburn Rd.	Fayetteville, N. C.
Marshburn, E. O., Jr.	1 Aero.	1704 St. Mary's St.	Raleigh, N. C.
Martin, C. D.	1 Aero.	303 Bagwell, 3369	Wilmington, N. C.
Martin, C. F., Jr.	4 Tex.	117 Alexander, 4114	Cramerton, N. C.
Martin, Grady Allen	2 Ag.	20 Bagwell Ave.	Stoney Point, N. C.
Martin, Grover Adlai	1 Aero.	301 Becton, 3769	Smithfield, N. C.
Martin, G. D.	4 Cer. E.	113 Syme, 3513	Charlotte, N. C.
Martin, G. E.	1 E. E.	207 Berry, 4314	Jackson, N. C.
Martin, H. M.	1 E. E.	2220 Hillsboro St.	Jamesville, N. C.
Martin, J. D.	4 For.	316 Syme, 3580	Roanoke, Va.
Martin, O. F., Jr.	4 For.	2514 Clark Ave.	Decatur, Ga.
Martin, O. N.	1 Aero.	311 Berry, 4331	Bryson City, N. C.
Martin, W. C.	1 M. E.	7 Maiden Lane	Denton, N. C.
Martin, W. D., Jr.	4 Arch. E.	1709 Hillsboro St.	Raleigh, N. C.
Masci, E. J.	1 C. E.	11 Maiden Lane	Wilmington, Del.
Massengill, H. K.	2 Tex.	525 N. Bloodworth St.	Raleigh, N. C.
Massengill, H. P.	1 M. E.	Western Blvd., Rt. No. 4	Raleigh, N. C.
Massey, P. H., Jr.	2 Ag.	102 Syme, 3502	Louisburg, N. C.
Matheson, J. C., Jr.	1 E. E.	324 Bagwell, 3390	Mt. Gilead, N. C.
Mathews, B. E., Jr.	1 Ag.	217 Bagwell, 3349	Durham, N. C.
Mathews, E. L., Jr.	1 Tex.	101 Berry, 4301	Wilmington, N. C.
Mathews, J. E.	1 For.	213 Becton, 3747	Richmond, Va.
Mathewson, P. L.	3 Tex.	10 Enterprise St.	Bristol, R. I.
Matthews, C. H.	4 M. E.	17 Syme, 3613	Stokesdale, N. C.
Matthews, J. M.	1 Aero.	109 Bagwell, 3309	Fuquay Springs, N. C.
Matthews, P. R.	1 Ch. E.	319 Turlington, 5133	Gates, N. C.
Mattocks, R. G.	2 Ch. E.	219 Syme, 3551	Greensboro, N. C.
Matusow, D. M.	1 Aero.	317 Bagwell, 3383	New York, N. Y.
Maxwell, T. M.	1 Aero.	119 Bagwell, 3319	Rocky Mount, N. C.
May, A. J., Jr.	1 Cer. E.	210 Woodburn Rd.	Littleton, N. C.
May, W. L., Jr.	3 Gen. E.	6 Ferndell Lane	Rockingham, N. C.
Mayer, W. L., Jr.	2 Tex.	20 Bagwell Ave.	Raleigh, N. C.
Mayfield, T. M., Jr.	2 C. E.	231 Syme, 3563	Monroe, N. C.
Maynard, J. T.	4 For.	2407 Clark Ave.	Williamsburg, Va.
Mayo, R. O., Jr.	2 M. E.	317 Turlington, 4279	Rocky Mount, N. C.
Meacham, F. B.	5 Ag. Ed.	2716 Everett Ave.	Raleigh, N. C.
Meads, C. B.	1 M. E.	Withdrew	Elizabeth City, N. C.
Meares, M. P.	1 Aero.	211 Becton, 3745	Chadbourn, N. C.
Mease, C. M., II	1 M. E.	229 Becton, 3763	Hopewell, Va.
Medlin, J. F.	1 M. E.	118 Bagwell, 3318	Bunn, N. C.
Meekins, T. A.	1 Ind. E.		Avon, N. C.
Melvin, B. T.	2 C. E.	131 Alexander, 4126	Fayetteville, N. C.
Mendenhall, R. R., Jr.	1 Ag.	Dairy	High Point, N. C.
Menius, E. F., Jr.	3 E. E.	101 Turlington, 4200	New Bern, N. C.
Meredith, W. B., II	4 C. E.	8 Ferndell Lane	Raleigh, N. C.
Merrell, G. D., Jr.	3 E. E.	103 Syme, 3503	Beaufort, N. C.
Merritt, B. O.	1 Tex.	104 Logan Court	Snow Hill, N. C.
Messick, J. E.	1 Cer. E.	113 Alexander, 4110	Charlotte, N. C.
Metcalfe, W. L.	3 E. E.	700 N. East St.	Tampa, Fla.
Mewborn, H. T.	1 Ag.	304 Berry, 4324	Snow Hill, N. C.
Mewborn, J. E., Jr.	2 Ag.	Withdrew	Snow Hill, N. C.
Mewborne, L. J.	1 Ag.	210 Woodburn Rd.	Kinston, N. C.
Michael, A. D.	1 E. E.	218 Bagwell, 3350	Gastonia, N. C.
Michaels, C. C.	1 C. E.	328 Bagwell, 3394	Morganton, N. C.

Name	Classification	School Address Dorm. Box No. or St. No.	Home Address
Michal, D. H.	3 Aero.	210 Welch, 3258	Canton, N. C.
Middleton, G. W.	3 Gen. E.	110 Welch, 3246	Warsaw, N. C.
Midgett, H. B.	2 Gen. E.	Withdrew	Buxton, N. C.
Midgett, W. B.	2 Cer. E.	104 Duncan St.	Raleigh, N. C.
Midyette, E. W., Jr.	1 Ch. E.	313 Becton, 3781	Belhaven, N. C.
Millar, F. W., III	1 M. E.	211 Bagwell, 3343	Washington, N. C.
Millard, C. H., Jr.	1 M. E.	10 Becton, 3812	Wilmington, N. C.
Miller, C. G., Jr.	2 C. E.	12 Horne St.	Waynesville, N. C.
Miller, F. W.	1 Occ. Inf.	9 Field House	Jeannette, Pa.
Miller, G. M.	1 C. E.	214 Bagwell, 3346	Lexington, N. C.
Miller, H. C., Jr.	3 Ch. E.	230 Syme, 3562	Mooresville, N. C.
Miller, J. H.	1 Tex.	127 Becton, 3727	Statesville, N. C.
Miller, J. W., Jr.	1 M. E.	127 Bagwell, 3327	Charlotte, N. C.
Miller, M. T.	3 C. E.	317 Alexander, 4180	N. Wilkesboro, N. C.
Miller, N. B.	2 C. E.	233 Turlington, 4260	Salisbury, N. C.
Miller, R. O.	2 Tex.	313 Syme, 3577	Concord, N. C.
Miller, W. A.	3 E. E.	21 Enterprise St.	Concord, N. C.
Milloyay, W. T.	1 Ch. E.	107 Becton, 3707	Greensboro, N. C.
Mills, J. A.	3 Aero.	114 E. Park Dr.	Raleigh, N. C.
Mills, J. T.	1 Ag.	112 Cox Ave.	Polkton, N. C.
Millsaps, T. C.	1 Aero.	A-1 Clark, 4422	Asheboro, N. C.
Mimms, J. C.	2 Ch. E.	2513 Clark Ave.	Durham, N. C.
Mims, C. B.	1 E. E.	2301 Wake Forest Rd.	Raleigh, N. C.
Mims, C. H., Jr.	3 Ch. E.	2301 Wake Forest Rd.	Raleigh, N. C.
Mitchell, M. H., Jr.	3 Aero.	12½ Horne St.	Weldon, N. C.
Mitchiner, S. T., Jr.	4 Aero.	117 Watauga, 3017	Garner, N. C.
Mittelstadt, Billy	1 Ch. E.	120 Becton, 3720	Reidsville, N. C.
Mock, B. A.	2 Tex.	9 Syme, 3605	Boonville, N. C.
Moffatt, D. J.	2 Ch. E.	12½ Horne St.	Milford, Conn.
Mogilnicki, E. J.	3 Ch. E.	120 Ashe Ave.	New Bedford, Mass.
Mones, W. A.	1 Tex.	111 Alexander, 4108	Newark, N. J.
Money, B. W.	1 Tex.	203 Welch, 3251	Greensboro, N. C.
Moniz, J. B.	3 Ch. E.	220 Alexander, 4149	New Bedford, Mass.
Monroe, J. D.	1 Ch. E.	309 Berry, 4329	Biscoe, N. C.
Monroe, T. G., Jr.	4 Aero.	103 Chamberlain St.	Hamlet, N. C.
Montague, E. B.	2 C. E.	129 Turlington, 4226	Goldsboro, N. C.
Montague, V. M.	5 Ag.	340 1911 (office)	Raleigh, N. C.
Montgomery, F. B.	1 C. E.	116 Woodburn Rd.	High Point, N. C.
Moody, W. E., Jr.	2 Aero.	210 E. Franklin St.	Raleigh, N. C.
Moore, A. W.	1 Aero.	130 Woodburn Rd.	Roanoke Rapids, N. C.
Moore, B. D., Jr.	1 E. E.	231 Alexander, 4160	Stokes, N. C.
Moore, D. B.	3 E. E.	104 Welch, 3240	Marshville, N. C.
Moore, D. P., Jr.	1 Aero.	307 Berry, 4327	Weldon, N. C.
Moore, G. F., Jr.	1 Aero.	Withdrew	Portsmouth, Va.
Moore, H. B.	1 Aero.	317 Becton, 3785	Graham, N. C.
Moore, H. C., Jr.	1 M. E.	2709 Vanderbilt	Reidsville, N. C.
Moore, J. F.	3 M. E.	16 Horne St.	Kannapolis, N. C.
Moore, J. L.	1 Tex.	310 Berry, 4330	Burlington, N. C.
Moore, R. S.	1 Aero.	118 Bagwell, 3318	Asheboro, N. C.
Moore, Vaughn, Jr.	1 M. E.	110 N. Bloodworth St.	Raleigh, N. C.
Moran, P. E.	1 Tex.	105 Berry, 4305	Winston-Salem, N. C.
Morgan, J. E.	3 Ag.	1710 Hillsboro St.	Asheville, N. C.
Morgan, J. J.	5 Ag.	907 W. Peace St.	Raleigh, N. C.
Morgan, J. W.	4 Ch. E.	1720 Hillsboro St.	Albemarle, N. C.
Morgan, T. M.	3 Ch. E.	16 Horne St.	Charlotte, N. C.
Morris, B. R.	1 Tex.	102 Becton, 3702	Gastonia, N. C.
Morris, Edwin	2 Tex.	11 Field House	Hillside, N. J.
Morris, M. B.	4 Ag.	12 Maiden Lane	Apex, N. C.
Morris, S. R., Jr.	1 Aero.	307 Bagwell, 3373	Charlotte, N. C.
Morrison, W. D., Jr.	2 Aero.	7 Enterprise St.	Chapel Hill, N. C.



<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Morrow, V. A.	3 Cer. E.	308 Syme, 3572	Bainbridge, Md.
Morton, D. Louise	2 Aero.	2304 Hillsboro St.	Greensboro, N. C.
Moser, G. P.	1 Ch. E.	203 Berry, 4310	Lewisville, N. C.
Moser, H. T.	3 Tex.	120 Alexander, 4116	Burlington, N. C.
Moser, W. D.	2 Tex.	123 Turlington, 4220	Burlington, N. C.
Moser, W. H.	1 M. E.	103 Clark, 4403	Winston-Salem, N. C.
Moss, C. H., Jr.	1 Ch. E.	334 Bagwell, 3400	Kings Mtn., N. C.
Moss, V. F., Jr.	1 Aero.	11 Becton, 3813	Wilson, N. C.
Mullineaux, J. B., Jr.	2 Tex.	210 Woodburn Rd.	New Bern, N. C.
Mulrooney, E. A., Jr.	2 M. E.	140 Alexander, 4132	Wilmington, Del.
Mulrooney, J. P.	1 M. E.	101 Clark, 4401	Wilmington, Del.
Murphy, L. V.	1 M. E.	326 Bagwell, 3392	Pittsburgh, Pa.
Murphy, R. D.	1 C. E.	1417 Scales St.	Raleigh, N. C.
Murray, J. W.	1 Tex.	211 Clark, 4420	Burlington, N. C.
Murrill, H. C.	2 Mech. E.	Withdrew	Wilmington, N. C.
Myers, A. S., Jr.	1 E. E.	320 Bagwell, 3386	Lexington, N. C.
Myers, J. B., Jr.	1 Ag.	16 Enterprise St.	Newton, N. C.
Myers, R. F.	4 Ag.	15 Syme, 3611	Laurel Springs, N. C.
Nackos, C. J.	2 C. E.	129 Alexander, 4124	Wilson, N. C.
Nadjar, J. G.	2 Tex.	308 Fourth, 3134	Santiago, Chile
Nau, H. H.	1 Ch. E.	105 Fourth, 3115	Norlina, N. C.
Neal, W. K.	1 Aero.	221 Bagwell, 3353	Roanoke Rapids, N. C.
Neale, W. M., Jr.	4 M. E.	2224 Hillsboro St.	Greensboro, N. C.
Needham, O. M., Jr.	1 Arch.	110 Bagwell, 3310	Pilot Mtn., N. C.
Neely, B. M.	1 Gen. E.	Withdrew	High Point, N. C.
Neely, R. R., Jr.	2 Ag.	132 Woodburn Rd.	LaFayette, Ga.
Negron, Henry	3 C. E.	8 Field House	Santurce, P. R.
Nelson, E. E.	2 Tex.	16 Enterprise St.	Alhambra, Calif.
Nery, R. A.	1 Aero.	319 Turlington, 4281	Lawrence, Mass.
Nery, R. J.	2 Ch. E.	221 Turlington, 4249	Lawrence, N. C.
Neumann, C. N.	1 Aero.	18½ Horne St.	Plainfield, N. J.
Newborg, B. C.	5 Ag.		New York, N. Y.
Newell, R. W.	1 Ch. E.	104 Logan Court	Camp Rucker, Ozark, Ala.
Newsom, A. L., Jr.	1 M. E.	103 Clark, 4403	Winston-Salem, N. C.
Newsom, R. W., Jr.	4 Ind. E.	125 Woodburn Rd.	Winston-Salem, N. C.
Newton, Gene	1 Tex.	210 Berry, 4317	Shelby, N. C.
Nichols, L. B., Jr.	1 Ch. E.	209 Berry, 4316	Andrews, N. C.
Nicholson, W. M.	2 Ch. E.	205 Fourth, 3123	Winston-Salem, N. C.
Nickel, R. F.	1 Aero.	1 Field House	Asheville, N. C.
Nicks, R. E.	4 Aero.	108 Watauga, 3008	Elkin, N. C.
Nielson, R. E.	1 For.	204 Bagwell, 3336	Brooklyn, N. Y.
Nobles, H. L.	1 Aero.	204 Gold, 3216	Stokes, N. C.
Nobles, T. M.	1 Tex.	121 Bagwell, 3321	Greenville, N. C.
Noel, C. W., Jr.	1 Ch. E.	508 Dixie Trail	Raleigh, N. C.
Noles, C. L.	1 E. E.	120 Turlington, 4217	Spencer, N. C.
Norman, J. H.	1 Aero.	1715 Park Dr.	Dobson, N. C.
Norton, R. P., Jr.	1 Aero.	301 Berry, 4321	Newton Centre, Mass.
Noyes, W. B.	4 Ind. E.	222 Hillcrest St.	Marion, N. C.
Nufer, W. L.	1 C. E.	207 Turlington, 4237	Goldsboro, N. C.
Nunn, M. D.	2 M. E.	307 Welch, 3267	Kinston, N. C.
Nurney, W. T.	1 Ch. E.	8 Berry, 4341	Phoebe, Va.
Nye, J. B., Jr.	1 Tex.	106 Horne St.	Fairmont, N. C.
Oakman, W. M.	2 Tex.	111 Turlington, 4208	Jamaica, N. Y.
Oatman, R. A.	2 Aero.	1718 Park Dr.	Angola, N. Y.
O'Briant, C. D.	1 Aero.	203 Clark, 4412	Rowland, N. C.
O'Daniel, J. W.	1 Aero.	2511 Stafford Ave.	Southport, N. C.
Odell, J. K. P.	2 Tex.	17 Enterprise St.	Concord, N. C.
Odum, C. T.	2 E. E.	320 Alexander, 4183	Norfolk, Va.
Odum, E. T., Jr.	1 Tex.	6 Enterprise St.	Warrenton, N. C.
Oetgen, W. F., Jr.	4 Ch. E.	300 Horne St.	Savannah, Ga.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Oettinger, Albert	1 E. E.	216 Bagwell, 3348	Wilson, N. C.
Ogburn, R. M., Jr.	2 Aero.	103 Chamberlain St.	Elkin, N. C.
Ogden, H. A.	1 Aero.	308 Bagwell, 3374	Charlotte, N. C.
Ogden, W. H.	4 For.	112 Halifax St.	Knoxville, Tenn.
Olanoff, S. I.	1 E. E.	302 Berry, 4322	Jamaica, N. Y.
Olive, H. K.	4 Arch.	3 Dixie Trail	Raleigh, N. C.
Oliver, P. S., Jr.	3 Ag.	116 Forest Rd.	Fairmont, N. C.
Orland, J. E., Jr.	4 Tex.	209 Watauga, 3027	Kannapolis, N. C.
Osborne, S. W.	1 For.	130 Woodburn Rd.	Stratford, N. C.
Otero, M. E.	1 C. E.	106 Fourth	Santurce, P. R.
Ott, L. B., Jr.	2 C. E.	311 Syme, 3575	Linesville, Pa.
Outen, J. A.	1 For.	208 Bagwell, 3340	Monroe, N. C.
Outlaw, L. B., Jr.	2 Ag.	213 Woodburn Rd.	Seven Springs, N. C.
Outlaw, R. E.	1 Ag.	122 Becton, 3722	Seven Springs, N. C.
Overman, D. T.	2 C. E.	335 Alexander, 4196	Stantonsburg, N. C.
Owen, C. W., Jr.	3 M. E.	12 Horne St.	Washington, D. C.
Owen, S. M.	1 Aero.	12 Becton, 3814	Whiteville, N. C.
Owens, H. V.	1 Tex.	134 Woodburn Rd.	Charlotte, N. C.
Owens, M. C.	1 E. E.	116 Forest Rd.	Elizabeth City, N. C.
Packard, H. D.	4 For.	2513 Clark Ave.	Paoli, Penn.
Padgett, W. L.	1 E. E.	318 Becton, 3786	Rocky Mount, N. C.
Page, F. L., III	1 Ch. E.	213 Becton, 3747	Zebulon, N. C.
Page, J. T.	1 E. E.	116 Forest Rd.	Fairmont, N. C.
Page, L. M.	2 M. E.	8 Ferndell Lane	Stedman, N. C.
Page, P. D.	3 E. E.	208 Gold, 3220	Fairmont, N. C.
Painter, C. C.	4 C. E.	2008 Hillsboro St.	Prospect Hill, N. C.
Palm, C. W.	4 Tex.	239 Turlington, 4264	Middletown, R. I.
Palmer, O. A., Jr.	2 E. E.	3401 Hillsboro St.	Raleigh, N. C.
Palmer, R. H.	1 Ch. E.	224 Alexander, 4153	Ardmore, Pa.
Pappas, N. C.	2 Ch. E.	115 Woodburn Rd.	Laurinburg, N. C.
Paramore, R. L.	1 Ag.	309 Turlington, 4272	Grimesland, N. C.
Park, J. E.	3 M. E.	103 Chamberlain St.	Charlotte, N. C.
Parker, C. W.	3 E. E.	2402 Hillsboro St.	Salisbury, N. C.
Parker, G. W.	1 Ch. E.	201 Bagwell, 3333	Murfreesboro, N. C.
Parker, J. C., Jr.	1 Ind. E.	318 Bagwell, 3384	Winston-Salem, N. C.
Parker, J. Lurline	2 Occ. Inf.	2800 Hazelwood Dr.	Mt. Gilead, N. C.
Parker, J. R.	1 E. E.	2306 Hillsboro St.	Clinton, N. C.
Parker, J. W., Jr.	1 E. E.	2702 Hillsboro St.	Raleigh, N. C.
Parker, L. D.	1 Ag. Ed.	109 Clark, 4409	Polkton, N. C.
Parker, P. G., Jr.	2 Tex.	129 Alexander, 4124	Erwin, N. C.
Parker, R. J., Jr.	1 C. E.	114 Becton, 3714	Goldsboro, N. C.
Parker, W. M.	1 Ag.	316 Watauga, 3052	Enfield, N. C.
Parks, P. V.	1 Ag.	207 Clark, 4416	Enfield, N. C.
Parks, Reid	2 C. E.	108 Syme, 3508	Lexington, N. C.
Parramore, D. G.	2 For.	116 Forest Rd.	Winton, N. C.
Parrish, C. M.	1 Ag.	124 Syme, 3524	Otto, N. C.
Parrish, M. R.	2 C. E.	2220 Hillsboro St.	Nashville, N. C.
Parrish, T. E.	1 Gen. E.	2202 Hillsboro St.	Portsmouth, Va.
Partin, B. K.	1 Ch. E.	222 Becton, 3756	Chadbourn, N. C.
Partin, C. A.	3 Ag.	7 Syme, 3603	Louisburg, N. C.
Partlow, J. E.	4 Cer. E.	116 Syme, 3516	Oak Hill, Ohio
Paschal, F. J.	4 Ch. E.	317 Watauga, 3053	Goldston, N. C.
Paschal, W. J.	1 Aero.	224 Becton, 3758	Goldston, N. C.
Pate, Rudolph	4 Ag. Ed.	210 Gold, 3222	Lumberton, N. C.
Patterson, B. T.	1 Ch. E.	101 Watauga, 3001	Morrisville, Pa.
Patterson, C. S., Jr.	2 Tex.	11 Field House	Cranford, N. J.
Patterson, O. F., Jr.	2 Ag.	311 Alexander, 4174	Sanford, N. C.
Patterson, R. B., Jr.	1 Ch. E.	108 Becton, 3708	Littleton, N. C.
Patton, A. J.	2 Aero.	113 Turlington, 4210	Franklin, N. C.
Patton, G. E.	4 Ag.	3 Syme, 3599	Franklin, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Patton, M. S.	4 Ag.	3 Syme, 3599	Franklin, N. C.
Patton, T. E.	4 Ch. E.	2402 Clark Ave.	Raleigh, N. C.
Paul, G. M., II	3 Aero.	10 Enterprise St.	Beaufort, N. C.
Paul, O. T.	1 Aero.	14 Becton, 3816	Washington, N. C.
Paulus, C. J., III	3 Aero.	2514 Clark Ave.	Yeadon, Pa.
Paylor, J. H., Jr.	1 Aero.	101 Becton, 3701	Farmville, N. C.
Payne, J. M.	3 Arch.	201 Alexander, 4133	Clayton, N. C.
Payne, T. S., Jr.	1 Ch. E.	26 Becton, 3826	Washington, N. C.
Paysour, L. E., Jr.	3 E. E.	108 Welch, 3244	Mooreville, N. C.
Pearce, R. H.	1 Ind. E.	2217 Oxford Rd.	Raleigh, N. C.
Pearsall, J. F.	1 Aero.	234 Bagwell, 3366	Rocky Point, N. C.
Pearson, D. E.	3 Ch. E.	227 Turlington, 4255	New Bedford, Mass.
Pearson, T. E.	1 Aero.	130 Bagwell, 3330	Reidsville, N. C.
Pease, J. N., Jr.	3 Arch.	4 Ferndell Lane	Charlotte, N. C.
Peck, Benjamin	2 Aero.	340 Turlington, 4298	New Rochelle, N. Y.
Pedone, S. P.	1 For.	120½ Groveland Ave.	Mt. Vernon, N. Y.
Peebles, E. D.	2 M. E.	814 Wake Forest Rd.	Raleigh, N. C.
Peele, E. B.	3 Tex.	301 Alexander, 4167	Bailey, N. C.
Peeler, C. M., Jr.	2 Ag.	112 Cox Ave.	Shelby, N. C.
Penegar, O. G., Jr.	1 For.	120½ Groveland Ave.	Gastonia, N. C.
Penland, R. W.	2 Ch. E.	115 Woodburn Rd.	Asheville, N. C.
Pennington, R. B.	4 Ch. E.	3208 Clark Ave.	Nathan's Creek, N. C.
Penny, R. G.	4 Ag.	104 Syme, 3504	Angier, N. C.
Perkinson, J. L.	2 Ag. Ed.	309 Welch, 3269	Norlina, N. C.
Perman, Bernard	4 Ch. E.	206 Watauga, 3024	Warrenton, N. C.
Perry, A. N.	2 M. E.	2306 Hillsboro St.	Hamlet, N. C.
Perry, J. L.	2 Ag.	19 Syme, 3615	Cofield, N. C.
Perry, L. B.	2 E. E.	226 Syme, 3258	Charlotte, N. C.
Perry, W. F.	1 C. E.	125 Woodburn Rd.	Wingate, N. C.
Perry, W. J., Jr.	4 E. E.	19 Syme, 3615	Cofield, N. C.
Perry, W. N., Jr.	1 Aero.	105 N. Boylan Ave.	Raleigh, N. C.
Perry, W. S.	1 C. E.	223 Bagwell, 3355	High Point, N. C.
Perryman, B. L.	1 M. E.	7 Berry, 4340	Thomasville, N. C.
Peterson, H. B.	1 Tex.	110 Becton, 3710	Brunswick, N. C.
Petree, J. W.	1 Aero.	318 Bagwell, 3384	Winston-Salem, N. C.
Petteway, A. M.	1 E. E.	208 Syme, 3540	Kinston, N. C.
Pfaff, J. Z., Jr.	1 Arch. E.	322 Becton, 3790	Winston-Salem, N. C.
Pharr, J. M.	2 Tex.	317 Syme, 3581	Concord, N. C.
Philips, Hartwell	1 Ch. E.	225 Becton, 3759	Middlesex, N. C.
Phillips, E. F., Jr.	1 C. E.	101 Bagwell, 3301	Charlotte, N. C.
Phillips, F. C., Jr.	3 Aero.	Apt. B-14, Horne St.	Burlington, N. C.
Phillips, K. L.	4 Ag.	108 Gold, 3208	Maysville, Ky.
Phillips, Mark	1 Aero.	301 Berry, 4321	Greenwich, Conn.
Phillips, M. H.	1 Ag. Ed.	130 Woodburn Rd.	Scotland Neck, N. C.
Phillips, R. M.	2 Ch. E.	209 Turlington, 4238	Charlotte, N. C.
Pickler, M. J.	2 Ag.	106 Syme, 3506	New London, N. C.
Pierce, H. P.	1 Aero.	2510 Vanderbilt Ave.	Beulaville, N. C.
Piland, W. Q.	1 Aero.	331 Bagwell, 3397	La Grange, N. C.
Pinner, Jack	3 E. E.	213 Alexander, 4142	W. New York, N. J.
Pisano, J. L.	1 Ind. A.	223 Syme, 3555	Feeding Hills, Mass.
Pittman, H. B., Jr.	1 Ch. E.	13 Becton, 3815	Snow Hill, N. C.
Pittman, R. B.	1 Tex.	130 Woodburn Rd.	Scotland Neck, N. C.
Pittman, W. T.	1 Ch. E.	116 Turlington, 4213	Rocky Mt., N. C.
Pitts, R. L., Jr.	1 Aero.	106 Berry, 4306	Spring Hope, N. C.
Pleming, H. A., Jr.	1 Aero.	213 Woodburn Rd.	Charlotte, N. C.
Plummer, J. S., Jr.	3 M. E.	326 Turlington, 4288	Spencer, N. C.
Poe, H. V.	2 E. E.	203 Alexander, 4135	Apex, N. C.
Poe, L. G.	1 Aero.	128 Bagwell, 3328	Winston-Salem, N. C.
Poitras, A. A.	3 Ch. E.	220 Alexander, 4149	New Bedford, Mass.
Pokoik, Leon	1 Aero.	28 Dixie Trail	New York, N. Y.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Polk, W. C., Jr.	1 M. E.	315 Becton, 3783	Winston-Salem, N. C.
Pollock, D. W., Jr.	1 M. E.	203 Chamberlain St.	Kinston, N. C.
Pomeranz, R. E.	4 M. E.	109 Watauga, 3009	Far Rockaway, N. Y.
Ponos, N. J.	3 Ch. E.	339 Turlington, 4298	Wilmington, N. C.
Pons, O. H., Jr.	1 Tex.	127 Turlington, 4224	Valdese, N. C.
Ponton, D. R., Jr.	2 Tex.	214 Forest Rd.	Raleigh, N. C.
Poole, R. B.	2 E. E.	2514 Clark Ave.	Greensboro, N. C.
Poole, S. F.	1 For.	318 Alexander, 4181	
Pope, M. E.	1 C. E.	Withdrew	Coats, N. C.
Porter, E. T., Jr.	1 Aero.	323 Becton, 3791	Georgetown, S. C.
Posluszny, R. F.	2 Cer. E.	Withdrew	Greenwich, Conn.
Poteet, G. E.	3 Aero.	115 Woodburn Rd.	Sylva, N. C.
Powell, C. H.	1 Tex.	10 Berry, 4343	Warsaw, N. C.
Powell, E. C.	2 C. E.	114 Alexander, 4111	Canton, N. C.
Powell, W. H., Jr.	1 M. E.	3 Gym	Rocky Mount, N. C.
Powers, H. R., Jr.	2 For.	2 Logan Ct.	Norfolk, Va.
Powers, L. E.	2 E. E.	304 Syme, 3568	Rutherfordton, N. C.
Powers, R. M.	2 Aero.	203 Watauga, 3021	Moyock, N. C.
Pratt, A. M.	3 Ag.	Greenhouse, 5254	Draper, N. C.
Pratt, T. B., Jr.	2 Ch. E.	329 Syme, 3593	Winston-Salem, N. C.
Preddy, W. R.	1 M. E.	334 Becton, 3802	Greensboro, N. C.
Price, E. M.	4 Ag. Ed.	102 Watauga, 3002	Forest City, N. C.
Price, E. W., Jr.	5 C. E.	2707 Van Dyke Ave.	Raleigh, N. C.
Price, W. R.	1 Ag.	3 Field House	La Grange, N. C.
Prichard, R. A.	1 E. E.	208 Becton, 3742	Winston-Salem, N. C.
Privett, Fleming	1 E. E.	132 Woodburn Rd.	Rockingham, N. C.
Privette, J. M.	1 Ag. Ed.	Withdrew	Wake Forest, N. C.
Proctor, E. K., IV	4 E. E.	22 Syme, 3618	Whiteville, N. C.
Proctor, W. L., Jr.	2 E. E.	133 Alexander, 4127	Durham, N. C.
Propst, M. E., Jr.	1 Ch. E.	8 Ferndell Lane	Charlotte, N. C.
Pruden, B. V.	4 M. E.	301 Watauga, 3037	Margarettsville, N. C.
Pugh, Alice D.	1 Ag.	1110 Glenwood Ave.	Raleigh, N. C.
Pulley, J. F.	1 Aero.	2215 Poole Rd.	Raleigh, N. C.
Pulliam, G. W., Jr.	3 Tex.	23 Shepherd St.	Roxboro, N. C.
Pulley, F. B.	3 C. E.	312 Alexander, 4175	Kinston, N. C.
Purcell, T. H., Jr.	4 Aero.	1620 Hillsboro St.	Ettrick, Va.
Purcell, W. C.	1 C. E.	206 Berry, 4313	Ettrick, Va.
Purlson, E. H.	2 Ag.	221 Turlington, 4249	Verona, N. J.
Putnam, J. O.	1 C. E.	207 Bagwell, 3334	Kinston, N. C.
Queen, R. J.	1 C. E.	27 Becton, 3826	Morganton, N. C.
Quinn, G. C., Jr.	1 Aero.	15 Becton, 3817	Hubert, N. C.
Quinn, G. S.	1 C. E.	124 Bagwell, 3324	Beulaville, N. C.
Raines, C. C.	1 E. E.	120 Turlington, 4217	Cliffside, N. C.
Rainey, R. W.	4 Aero.	21 Enterprise St.	Fayetteville, N. C.
Ramseur, R. M.	2 Ch. E.	111 Syme, 3511	Columbia, S. C.
Ramseur, W. F.	3 Ag.	315 Syme, 3579	Morganton, N. C.
Ramsey, A. L., Jr.	4 Ag.	23 Syme, 3619	Franklin, N. C.
Rand, W. N.	1 Aero.	101 Syme, 3501	Richlands, N. C.
Ranes, W. C., Jr.	4 E. E.	302 Fourth, 3128	Tarboro, N. C.
Raney, M. T.	4 Ind. E.	314 Watauga, 3050	La Crosse, Va.
Rankin, B. F.	2 Ch. E.	311 Turlington, 4273	Charlotte, N. C.
Rankin, S. A.	2 Tex.	103 Chamberlain	Gastonia, N. C.
Raper, D. G.	2 Ag.	115 Syme, 3515	Wilson, N. C.
Rasmussen, P. B., Jr.	1 Aero.	105 Bagwell, 3305	Hope Mills, N. C.
Rassas, H. L.	1 Ind. E.	324 Turlington, 4286	Long Branch, N. J.
Ratcliff, Z. O., Jr.	4 Ag.	218 Chamberlain St.	Panteo, N. C.
Ratts, B. W.	1 For.	203 Chamberlain St.	Fayetteville, N. C.
Ratts, J. L.	2 E. E.	322 Alexander, 4185	Fayetteville, N. C.
Rawls, H. D.	4 Occ. Inf.	2209 Circle Dr.	Raleigh, N. C.
Ray, J. F.	2 E. E.	Power Plant, 5241	Hillsboro, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Ray, P. D.	2 Tex.	110 Syme, 3510	Asheville, N. C.
Ray, R. B.	2 E. E.	107 Welch, 3243	Lillington, N. C.
Ray, W. F.	2 Gen. E.	213 Turlington, 4241	Tampa, Fla.
Rayford, R. B.	1 Ag.	8 Ferndell Lane	Newton Grove, N. C.
Rector, R. E.	2 Aero.	115 Woodburn Rd.	Hiawassee Dam, N. C.
Reddeck, J. G.	2 E. E.	2316 Hillsboro, 5403	Wilmington, N. C.
Redmon, T. P.	3 Ch. E.	302 Syme, 3566	Cleveland, N. C.
Reece, J. R.	2 Gen. E.	307 Alexander, 4172	Winston-Salem, N. C.
Reed, R. W.	1 M. E.	102 Bagwell, 3302	Forest City, N. C.
Reep, L. J.	1 Ag.	2408 Stafford Ave.	Lincolnton, N. C.
Reeves, J. C.	2 Ch. E.	228 E. Park Dr.	Raleigh, N. C.
Regan, B. G.	1 Ag.	13 Syme, 3609	Lexington, N. C.
Regan, D. B.	1 Ag.	2302 Clark Ave.	Lexington, N. C.
Rehder, G. S.	3 Ag.	104 Logan Ct.	Wilmington, N. C.
Reid, D. W.	1 Ch. E.	205 Fourth, 3123	Norfolk, Va.
Reid, G. D.	1 M. E.	226 Syme, 3558	Savannah, Ga.
Reid, H. A.	4 Ag.	213 Syme, 3541	Elizabeth City, N. C.
Reid, H. K.	2 E. E.	231 Turlington, 4259	Charlotte, N. C.
Reid, J. D.	2 Aero.	1 Gym	High Point, N. C.
Reilly, P. K.	1 Ch. E.	Cameron Court Apts.	Raleigh, N. C.
Remillard, E. J., Jr.	3 Ch. E.	120 Ashe Ave.	Fairhaven, Mass.
Rennie, J. N.	3 Ch. E.	113 Watauga, 3013	Whitakers, N. C.
Reynolds, F. H. K., Jr.	4 M. E.	315 Watauga, 3051	San Antonio, Tex.
Reynolds, R. H.	3 Aero.	1420 Park Dr.	Raleigh, N. C.
Reynolds, T. M.	3 Ag. Ed.	109 Becton, 3709	Columbia, N. C.
Rhodes, J. H.	2 Aero. E.	218 Turlington, 4246	W. Hartford, Conn.
Rhodes, M. E. (Miss)	2 Occ. Inf.	Peace College	Lincolnton, N. C.
Rhodes, M. K.	2 E. E.	219 Turlington, 4247	Waterbury, Conn.
Rhyne, C. T., Jr.	4 Arch. E.	111 Watauga, 3011	Newport, Tenn.
Rhyne, E. P., Jr.	2 Tex.	335 Turlington, 4295	Hickory, N. C.
Rhyne, J. L.	3 Tex.	5 Berry, 4338	Lincolnton, N. C.
Rhyne, Richard Henry	1 E. E.	14 Becton, 3816	Catawba, N. C.
Rhyne, Rufus Howerton	1 Ag.	316 Turlington, 4278	Sherrill's Ford, N. C.
Rice, G. B.	1 Aero.	204 Gold, 3216	Reidsville, N. C.
Rich, C. J., Jr.	2 Aero.	11 Maiden Lane	Black Mtn., N. C.
Rich, Marshall	1 Arch. E.	503 Harding St.	Raleigh, N. C.
Richardson, R. C.	2 Tex.	1913 Alexander Rd.	Raleigh, N. C.
Richardson, R. R.	2 Aero.	109 Alexander, 4107	Jacksonville, N. C.
Richardson, W. R.	1 Gen. E.	313 Becton, 3781	Wendell, N. C.
Richey, H. L.	4 Ag.	208 Syme, 3540	Camden, S. C.
Rickenbaker, L. H., Jr.	1 E. E.	307 Bagwell, 3373	New River, N. C.
Riddle, C. H., Jr.	2 Gen. E.	227 Syme, 3559	Sanford, N. C.
Riddle, T. L., Jr.	1 Tex.	102 Clark, 4402	Sanford, N. C.
Riley, B. A.	4 Aero.	2513 Clark Ave.	Fayetteville, N. C.
Ritchie, James, Jr.	2 E. E.	3 Gym, 5382	Pores Knob, N. C.
Ritchie, J. C.	1 C. E.	233 Turlington, 4260	Salisbury, N. C.
Ritchie, L. M.	1 C. E.	210 Bagwell, 3342	Albemarle, N. C.
Rivenbark, H. W.	1 Ag. Ed.	317 Bagwell, 3383	Warsaw, N. C.
Rivers, W. J.	1 For.	11 Maiden Lane	Wilmington, Del.
Robbins, S. H., Jr.	1 M. E.	103 Bagwell, 3303	Washington, N. C.
Robbins, T. J.	3 Ag.	202 Gold, 3214	Burgaw, N. C.
Roberson, J. L.	1 Ch. E.	2316 Hillsboro St.	Parmele, N. C.
Roberts, A. C. (Mrs.)	5 Ag.	K-4 Raleigh Apts.	Raleigh, N. C.
Roberts, C. M.	3 Tex.	2513 Clark Ave.	Salisbury, N. C.
Roberts, E. H., Jr.	2 Aero.	705 W. North St.	Raleigh, N. C.
Robertson, A. K., Jr.	3 Gen. E.	102 Alexander, 4102	Goldsboro, N. C.
Robinson, C. M.	2 Tex.	21 Enterprise St.	Lowell, N. C.
Robinson, E. W.	1 Ag.	323 Alexander, 4186	Vanceboro, N. C.
Robinson, G. B.	1 E. E.	116 Becton, 3716	Norlina, N. C.
Robinson, Herman	1 Aero.	213 Berry, 4320	Kinston, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Robinson, James L., Jr.	2 Ind. E.	127 Brooks, 5033	Kansas City, Mo.
Robinson, Julian L.	1 M. E.	134 Bagwell, 3402	Hamlet, N. C.
Robinson, J. M., Jr.	1 E. E.	304 Becton, 3772	Chester, S. C.
Robinson, J. W.	2 Aero.	2302 Hillsboro St.	Norfolk, Va.
Robinson, M. A.	2 Arch. E.	204 Turlington, 4235	Asheville, N. C.
Robinson, R. B., Jr.	4 Ag.	Withdrew	Littleton, N. C.
Robinson, W. D.	4 Ag. Ed.	318 Syme, 3582	Maiden, N. C.
Robinson, Z. B., Jr.	1 Arch. E.	2220 Hillsboro St.	Asheville, N. C.
Roche, J. J.	1 M. E.	221 Bagwell, 3353	Hewlett, N. Y.
Roe, J. B.	1 Ag.	125 Hawthorne Rd.	Sturgills, N. C.
Roebuck, C. G.	1 C. E.	103 Becton, 3703	Colerain, N. C.
Rogers, D. C.	1 Ag.	2316 Hillsboro St.	Wake Forest, N. C.
Rogers, J. P.	2 Arch. E.	10 Enterprise St.	Smithfield, N. C.
Rogers, J. W.	1 Aero.	105 Clark, 4405	Greensboro, N. C.
Rogers, Lawrence	1 Ag.	2305 Clark Ave.	Roxboro, N. C.
Rogers, R. S.	1 Ag.	2305 Clark Ave.	Roxboro, N. C.
Rollins, C. B.	2 For.	229 Alexander, 4158	Hickory, N. C.
Rose, B. L.	3 Ch. E.	2407 Clark Ave.	Wadesboro, N. C.
Rose, D. A.	1 Ag.	609 St. Mary's St.	Norlina, N. C.
Rose, G. A., III	4 Ch. E.	222 Hillcrest Rd.	Henderson, N. C.
Rose, J. A., IV	1 Arch.	232 Syme, 3564	Durham, N. C.
Rose, R. W.	2 Aero.	2514 Clark Ave.	Durham, N. C.
Rosen, E. S.	1 Ch. E.	231 Becton, 3765	Asheville, N. C.
Rosen, Martin	1 Tex.	126 Bagwell, 3326	Bronx, N. Y.
Rosenberg, Jacques	1 Tex.	328 Turlington, 4290	Forest Hills, L. I., N. Y.
Rosenfeld, H. M.	4 Aero.	305 Syme, 3569	New York, N. Y.
Ross, J. P.	2 Gen. E.	16 Horne St.	Charlotte, N. C.
Ross, R. G., Jr.	3 Gen. E.	2514 Clark Ave.	Charlotte, N. C.
Rotan, J. S.	2 Tex.	304 Turlington, 4269	Cramerton, N. C.
Roth, J. S.	2 Tex.	1304 Hillsboro St.	Brooklyn, N. Y.
Rothberg, Maurice	5 R. S.	203 Fourth, 3121	Melbourne, Australia
Rothschild, H. L.	1 Tex.	329 Bagwell, 3395	Brooklyn, N. Y.
Rothstein, H. L.	1 Occ. Inf.	1814 Park Dr.	New York, N. Y.
Rountree, R. B.	1 Aero.	233 Becton, 3767	Goldsboro, N. C.
Rouse, R. N.	2 C. E.	130 Alexander, 4125	Goldsboro, N. C.
Rowe, E. R.	2 M. E.	117 Alexander, 4114	Aberdeen, N. C.
Rowe, J. H., Jr.	2 M. E.	323 Turlington, 4285	Salisbury, N. C.
Rowe, R. L.	1 Ag.	321 Bagwell, 3387	Harrellsville, N. C.
Royall, D. C.	1 M. E.	115 Hillsboro St.	Thurmond, N. C.
Rubinton, J. E.	1 Aero.	116 Forest Rd.	Brooklyn, N. Y.
Rudisill, C. L., Jr.	1 Aero.	125 Bagwell, 3325	Marshall, N. C.
Rudisill, J. A., Jr.	3 E. E.	300 Horne St.	Charlotte, N. C.
Rue, C. V.	4 Cer. E.	1307 Mordecai Dr.	Raleigh, N. C.
Ruffin, T. W.	1 Aero.	207 Berry, 4314	Wilson, N. C.
Rugh, F. A., Jr.	2 Cer. E.	Withdrew	Jeannette, Pa.
Rumple, W. G., Jr.	1 M. E.	222 Alexander, 4151	Concord, N. C.
Ruppe, C. E.	1 C. E.	313 Bagwell, 3379	Fort Sill, Okla.
Russell, L. O., Jr.	1 M. E.	16 Enterprise St.	Wilmington, N. C.
Russell, R. W.	3 Aero.	1905 Park Dr.	Kinston, N. C.
Russell, W. R.	1 Aero.	107 Bagwell, 3307	Candler, N. C.
Russos, J. H.	1 C. E.	550 E. Martin St.	Raleigh, N. C.
Ryman, J. K.	1 C. E.	2212 Hope St.	Whitehouse, N. J.
Rymer, A. M.	1 Ag.	330 Bagwell, 3396	Hendersonville, N. C.
Rymer, F. P., Jr.	2 Ch. E.	112 Alexander, 4109	Asheville, N. C.
Sadler, J. T., Jr.	2 Arch.	215 Alexander, 4144	Tarboro, N. C.
Saleeby, E. C.	2 Cer. E.	201 Chamberlain St.	Wilson, N. C.
Salisbury, R. M.	2 Tex.	2720 Vanderbilt Ave.	Scotland Neck, N. C.
Samet, Sydney	1 Aero.	207 Bagwell, 3339	Guilford College, N. C.
Sampson, J. E.	4 Tex.	239 Turlington, 4264	Guilford College, N. C.
Sancton, J. R.	1 Aero.	230 Becton, 3764	Greensboro, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Sanders, J. P.	1 E. E.	106 Berry, 4306	Four Oaks, N. C.
Sanders, R. M.	1 Aero.	Withdrew	Wilmington, N. C.
Sanderson, J. E.	2 Ag.	11 Syme, 3607	Four Oaks, N. C.
Santore, G. L.	4 Cer. E.	2004 Hillsboro St.	Hasbrouck Hts., N. J.
Sapp, D. F.	3 Tex.	303 Welch, 3263	Concord, N. C.
Sasser, J. N.	4 Ag. Ed.	106 Gold, 3206	Goldsboro, N. C.
Sasser, M. C.	2 Ind. E.	118 Syme, 3518	Selma, N. C.
Saunders, J. S., Jr.	1 M. E.	315 Turlington, 4277	New York, N. Y.
Sawyer, V. L.	1 M. E.	312 Alexander, 4175	Swan Quarter, N. C.
Sawyer, W. E.	4 Tex.	23 Logan Court	Columbus, N. C.
Sayah, Max	4 Chem. E.	215 Watauga, 3033	Allentown, Pa.
Sayre, E. H.	4 For.	2004 Hillsboro St.	Tryon, N. C.
Sayres, C. E., Jr.	1 Aero.	25 Becton, 3826	Charlotte, N. C.
Scarborough, R. E.	1 Cer. E.	202½ Linden Ave.	Raleigh, N. C.
Schell, W. B.	1 Gen. E.	2406 Fairview Rd.	Raleigh, N. C.
Schenck, J. F., III	3 Tex.	2405 Clark Ave.	Shelby, N. C.
Schenkman, H. I.	1 M. E.	305 Bagwell, 3371	Brooklyn, N. Y.
Scherr, H. M.	2 Tex.	226 Alexander, 4155	Asheville, N. C.
Schmidt, R. P.	2 Ch. E.	516 Daughtridge St.	Raleigh, N. C.
Schneider, W. F., Jr.	1 Ag.	Withdrew	Long Island, N. Y.
Schreyer, C. E., Jr.	3 For.	114 Syme, 3514	Mamaroneck, N. Y.
Schubart, C. S.	4 Ag.	3020 Eton Rd.	Maplewood, N. J.
Schultz, E. F., Jr.	5 Ag.	6 Enterprise St.	Citronelle, Ala.
Schwartz, H. K.	2 Tex.	205 Turlington, 4236	Charlotte, N. C.
Schwartz, S. C.	2 Tex.	1304 Hillsboro St.	Baltimore, Md.
Scoggins, H. D.	3 Tex.	301 Turlington, 4266	Wilmington, N. C.
Scott, H. B.	1 Aero.	106 Horne St.	Greensboro, N. C.
Seals, R. K.	4 C. E.	209 Syme, 3541	Morganton, N. C.
Seawell, W. D.	4 Tex.	103 Chamberlain St.	Greensboro, N. C.
Sedberry, R. B.	1 Tex.	226 Bagwell, 3358	Concord, N. C.
Seid, J. N.	2 Aero.	304 Welch, 3228	Brooklyn, N. Y.
Seifart, A.	4 Ind. E.	202 Groveland Ave.	Charlotte, N. C.
Seligson, Arnold	2 Aero.	114 Turlington, 4211	New York, N. Y.
Sellers, W. H.	4 Ag. Ed.	301 Syme, 3565	Kings Mtn., N. C.
Seltzer, D. M.	1 Aero.	113 Becton, 3713	Concord, N. C.
Seltzer, E. N.	2 For.	103 Gold, 3203	Concord, N. C.
Semanik, J. M., Jr.	4 Tex.	228 Turlington, 4256	Troy, N. C.
Senn, R. M., Jr.	2 Aero.	216 Turlington, 4244	Charlotte, N. C.
Senter, R. L.	3 Ind. E.	26 Dixie Trail	Raleigh, N. C.
Setzer, C. M., Jr.	4 M. E.	1720 Hillsboro St.	Charlotte, N. C.
Setzer, J. W.	3 Ch. E.	17 Enterprise St.	Maiden, N. C.
Sexton, K. B.	1 C. E.	305 Turlington, 4270	Enfield, N. C.
Shafer, C. B.	3 Aero.	103 Chamberlain St.	Chevy Chase, Md.
Shankle, G. D.	1 Ag.	322 Bagwell, 3388	Polkton, N. C.
Sharkey, F. A.	1 M. E.	327 Becton, 3795	Albemarle, N. C.
Sharp, J. V.	1 Aero.	309 Becton, 3777	Reidsville, N. C.
Sharpe, E. E.	2 Aero.	333 Turlington, 4294	Burlington, N. C.
Sharpe, H. T.	2 Ch. E.	101 Alexander, 4101	Newton, N. C.
Sharpe, J. R., Jr.	1 M. E.	302 Bagwell, 3368	Winston-Salem, N. C.
Sharpe, W. E., Jr.	1 Tex.	205 Turlington, 4236	Siler City, N. C.
Shaw, J. P.	5 Ag. Ec.	3203 Ruffin St.	Raleigh, N. C.
Shaw, W. C.	4 Ag. Ed.	202 Syme, 3534	Roanoke Rapids, N. C.
Shearin, S. H., Jr.	1 E. E.	24 Becton, 3825	Rocky Mt., N. C.
Sheets, C. H.	4 Ch. E.	201 Turlington, 4232	Salisbury, N. C.
Shelden, R. E. J. (Miss)	2 Tex.	210 N. Person St.	Camp Forrest, Tenn.
Shelton, J. K., Jr.	1 Aero.	106 Becton, 3706	Arlington, Va.
Shepherd, G. W., Jr.	1 M. E.	234 Becton, 3768	Graham, N. C.
Shepherd, R. E.	1 Ch. E.	205 Clark, 4414	Wilmington, N. C.
Shepherd, R. M.	2 Ch. E.	212 Alexander, 4141	Weldon, N. C.
Sherman, J. W.	1 E. E.	107 Clark, 4407	Fairhaven, Mass.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Sherrill, H. H., Jr.	2 M. E.	132 Syme, 3532	Winston-Salem, N. C.
Sherrill, P. E., Jr.	2 E. E.	105 Watauga, 3005	Mooreville, N. C.
Shevchenko, R. P.	4 Aero. E.	101 Watauga, 3001	Port Norris, N. J.
Shields, E. R.	3 Aero. E.	4 Ferndell Lane	Scotland Neck, N. C.
Shine, C. R.	1 Ch. E.	207 Gold, 3219	Faison, N. C.
Shoaf, E. H.	4 E. E.	211 Watauga, 3029	Charlotte, N. C.
Shoe, G. W.	4 Arch. E.	1313 Hillsboro St.	Greenville, N. C.
Shoffner, J. E.	4 Cer. E.	1623 Park Drive	Raleigh, N. C.
Shoffner, R. W.	5 Ag. Ec.	2810 Exeter Circle	Raleigh, N. C.
Shore, J. W., Jr.	1 Tex.	330 Turlington, 4292	Boonville, N. C.
Short, R. E.	4 C. E.	310 Watauga, 3046	Prospect Park, Pa.
Shoub, J. L.	3 For.	316 Syme, 3580	East Orange, N. J.
Showalter, M. R.	4 E. E.	2820 Barmettler St.	Raleigh, N. C.
Shuford, E. M.	2 Aero. E.	207 Alexander, 4138	Fayetteville, N. C.
Shull, G. H.	1 Ag.	303 Becton, 3771	Shelby, N. C.
Shumaker, F. M. (Miss)	2 Occ. Inf.	2744 Rosedale Ave.	Raleigh, N. C.
Sides, B. E.	4 Tex.	228 Turlington, 4256	Winston-Salem, N. C.
Sides, B. J.	1 Tex.	2220 Hillsboro St.	Rockwell, N. C.
Siff, M. S.	1 Tex.	134 Becton, 3734	Winston-Salem, N. C.
Silberman, R. S.	1 Tex.	233 Bagwell, 3365	New York, N. Y.
Silver, H. S.	2 Tex.	Midway Plantation	Raleigh, N. C.
Silverman, N.	1 Tex.	2710 Everett Ave.	New York City
Simerson, H. Y.	3 Tex.	217 Turlington, 4245	Spencer, N. C.
Simmons, J. M.	3 M. E.	306 Welch, 3270	Greensboro, N. C.
Simons, N. E.	2 Aero. E.	21 Syme, 3617	Asheville, N. C.
Simpson, David L., Jr.	3 Aero. E.	306 Watauga, 3042	Asheville, N. C.
Simpson, Davis L.	2 M. E.	308 Gold, 3232	Elon College, N. C.
Singer, J. L.	3 M. E.	325 Syme, 3589	New York City
Singleton, J. S.	1 E. E.	Withdrew	Red Springs, N. C.
Sink, A. M.	4 Ag.	107 Gold, 3207	Lexington, N. C.
Sink, I. H.	1 Tex.	105 Berry, 4305	Lexington, N. C.
Sink, K. A.	2 Ag. Ed.	139 Alexander, 4131	Thomasville, N. C.
Skeen, T. H., Jr.	4 Ch. E.	2316 Hillsboro St., 5403	Biscoe, N. C.
Skinner, B. A., Jr.	2 Aero. E.	226 Syme, 3558	Charlotte, N. C.
Sledge, F. L., Jr.	1 M. E.	213 Bagwell, 3345	Petersburg, Va.
Sloan, D. D.	2 Aero. E.	306 Welch, 3266	Garland, N. C.
Sloan, H. W.	3 Aero. E.	310 Syme, 3574	Charlotte, N. C.
Sloop, A. M.	4 M. E.	209 Watauga, 3027	Kannapolis, N. C.
Small, A. R.	3 M. E.	608 Rosemont	Albemarle, N. C.
Smith, A. C.	2 C. E.	316 Turlington, 4278	Mooreville, N. C.
Smith, D. E.	1 Ag.	309 Berry, 4329	Laurinburg, N. C.
Smith, E. D., Jr.	2 M. E.	127 Alexander, 4122	Durham, N. C.
Smith, E. E.	1 Aero. E.	123½ Chamberlain St.	W. Asheville, N. C.
Smith, G. B.	3 Ch. E.	329 Syme, 3593	Winston-Salem, N. C.
Smith, G. H.	2 Ch. E.	115 Woodburn Rd.	Gilkey, N. C.
Smith, H. B.	2 Ch. E.	6 Dixie Trail	Raleigh, N. C.
Smith, J. A.	4 Ag. Ed.	10 Syme, 3606	Vass, N. C.
Smith, J. B.	1 Ag. Ed.	8½ Maiden Lane	Deep Run, N. C.
Smith, J. E.	1 Aero. E.	302 Becton, 3770	Charlotte, N. C.
Smith, J. K.	1 E. E.	A Berry, 4344	Marshville, N. C.
Smith, J. L.	1 Aero. E.	219 Becton, 3753	Spindale, N. C.
Smith, J. O.	1 Ag. Ed.	8½ Maiden Lane	Deep Run, N. C.
Smith, J. R., Jr.	1 Tex.	333 Becton, 3801	Millburn, N. J.
Smith, J. T.	2 Aero. E.	204 Alexander, 4136	High Point, N. C.
Smith, J. W., Jr.	1 Ch. E.	2626 Dover Rd.	Raleigh, N. C.
Smith, N. N.	2 M. E.	126 Forest Rd.	Belhaven, N. C.
Smith, Remus John, Jr.	1 E. E.	216 Turlington, 4244	Hillsboro, N. C.
Smith, Rufus Jackson, Jr.	4 Cer. E.	113 Syme, 3513	Goldsboro, N. C.
Smith, R. R.	1 Ag.	130 Woodburn Rd.	Chadbourn, N. C.
Smith, T. M.	1 C. E.	303 Becton, 3771	Elizabeth City, N. C.



<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Smith, W.	1 Ag.	322 Bagwell, 3388	Goldsboro, N. C.
Smith, W. N.	1 Ag.	8 Becton, 3810	New London, Conn.
Smithwick, R. W.	3 Ch. E.	323 Syme, 3587	Louisburg, N. C.
Snively, H. C.	2 Aero. E.	114 Turlington, 4211	Winston-Salem, N. C.
Sneed, J. A.	1 C. E.	331 Becton, 3799	Wilmington, N. C.
Snyder, F. C.	1 M. E.	213 Berry, 4320	Winston-Salem, N. C.
Soady, E. D.	4 C. E.	202 Watauga, 3020	Asheboro, N. C.
Solow, R. I.	2 For.	222 Park Ave.	Everette, Mass.
Somers, J. C.	1 Ind. A. Ed.	2302 Hillsboro St.	Elon College, N. C.
Sommerville, Samuel S.	1 M. E.	Withdrew	Raleigh, N. C.
Southern, R. W.	1 E. E.	610 W. Johnson St.	Raleigh, N. C.
Sox, J. L., Jr.	1 Ch. E.	Cary, Box 125	Cary, N. C.
Spain, F. H., Jr.	2 Ag. Ed.	128 Alexander, 4123	Henderson, N. C.
Spain, J. O.	1 Aero. E.	Ridgecrest Rd.	Raleigh, N. C.
Spainhour, C. D.	4 M. E.	207 Watauga, 3025	Greensboro, N. C.
Sparks, Sue D.	5 Ent.	219 Hillcrest Rd.	Lexington, Ky.
Sparrow, T. B.	3 Tex.	203 Welch, 3251	Greensboro, N. C.
Speairs, R. K., Jr.	5 Ag.	306 Brooks Ave.	Texarkana, Tex.
Spear, J. F.	2 Aero. E.	7 Enterprise St.	Oxford, N. C.
Spears, S. M.	2 Ch. E.	311 Welch, 3271	Whiteville, N. C.
Speight, P. T.	2 Ag.	328 Syme, 3592	Winterville, N. C.
Speight, T. S.	1 Ag.	9 Berry, 4342	Windsor, N. C.
Spencer, W. D.	1 Cer. E.	328 Becton, 3796	Lexington, N. C.
Spiegel, N.	1 Tex.	331 Turlington, 4293	Brooklyn, N. Y.
Spinks, J. D., Jr.	1 C. E.	1 Becton, 3803	Winston-Salem, N. C.
Spoon, F. L.	1 M. E.	226 Becton, 3760	Winston-Salem, N. C.
Springer, J. A., Jr.	1 M. E.	114 Horne St.	Marston, N. C.
Spruill, A. C.	2 Aero. E.	218 Syme, 3550	Goldsboro, N. C.
Spruill, H. J.	1 M. E.	2202 Hillsboro St.	Pinetown, N. C.
Sprung, I. J.	2 Ag.	223 Turlington, 4251	New York, N. Y.
Spurling, E. G., Jr.	2 Arch. E.	213 Turlington, 4241	Fallston, N. C.
Squires, Irving	1 Aero. E.	227 Alexander, 4156	Brooklyn, N. Y.
Stack, V. T.	1 Ch. E.	327 Becton, 3795	Portsmouth, Va.
Stafford, A. W., Jr.	1 Ch. E.	314 Alexander, 4177	Asheville, N. C.
Stains, H. J.	1 Ag.	10 Berry, 4343	Frenchtown, N. J.
Staley, C. W.	2 C. E.	10 Enterprise St.	Greensboro, N. C.
Stallings, G. R.	1 C. E.	109 Becton, 3709	Smithfield, N. C.
Stallings, J. B.	1 M. E.	115 Becton, 3715	Kinston, N. C.
Stallings, J. W.	3 Ag.	312 Gold, 3236	Selma, N. C.
Stanford, W. T.	2 M. E.	2306 Hillsboro St.	Charlotte, N. C.
Stanton, W. M.	2 Ag.	105 Turlington, 4204	Rowland, N. C.
Stapleton, E. M.	2 Aero. E.	2723 Anderson Dr.	Raleigh, N. C.
Starling, D. G.	2 Ag.	222 Park Ave.	Autryville, N. C.
Starnes, B. F., Jr.	3 Ch. E.	6 Ferndell Lane	Monroe, N. C.
Steele, C. H.	3 M. E.	202 Alexander, 4134	Charlotte, N. C.
Steele, C. N.	3 Gen. E.	103 Chamberlain St.	Statesville, N. C.
Steele, F. M.	3 Cer. E.	103 Chamberlain St.	Winston-Salem, N. C.
Steele, G. R., Jr.	3 E. E.	309 Alexander, 4173	Charlotte, N. C.
Steele, W. P.	2 Cer. E.	103 Chamberlain St.	Winston-Salem, N. C.
Stegall, H. E., Jr.	1 Tex.		Gastonia, N. C.
Stein, H. M.	3 Ag.	227 Alexander, 4156	Newark, N. J.
Steinberg, A. A.	1 Ind. E.	28 Dixie Trail	Bronx, N. Y.
Stepheno, M. S., Jr.	4 C. E.	240 Turlington, 4266	Wakefield, R. I.
Stephenson, T. N.	2 M. E.	1011 W. Peace St.	Raleigh, N. C.
Stevens, G. B.	2 E. E.	314 Turlington, 4276	Mooreville, N. C.
Stevens, J. E.	2 Aero. E.	1907 Alexander Rd.	Raleigh, N. C.
Stevens, W. A.	1 Aero. E.	321 Becton, 3789	Smithfield, N. C.
Stewart, A. T.	3 Ch. E.	201 Watauga, 3019	Washington, N. C.
Stewart, C. P.	2 Ag. Ed.	Withdrew	Broadway, N. C.
Stewart, G. M.	1 Ch. E.	227 Becton, 3761	Lenoir, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Stewart, J. M.	2 Tex.	222 Hillcrest Rd.	Riverside, Conn.
Stewart, S. D.	1 M. E.	101 4th, 3111.	Hamlet, N. C.
Stickler, B. P.	1 For.	8 Becton, 3810.	Newark, N. J.
Stiles, D. J.	3 Tex.	10 Enterprise St.	Stafford, Conn.
Stilwell, M. L.	4 Tex.	209 Becton, 3743.	Thomasville, N. C.
Stinson, H. E.	2 Ag. Ed.	330 Turlington, 4292.	Boonville, N. C.
Stockard, H. J., Jr.	4 Gen. E.	705 Hillsboro St.	Raleigh, N. C.
Stokes, J. A., Jr.	2 M. E.	131 Syme, 3531.	Charlotte, N. C.
Stone, C. H.	1 Arch. E.	109 Bagwell, 3309.	Mt. Gilead, N. C.
Stone, G. E.	1 E. E.	116 Bagwell, 3316.	Mt. Gilead, N. C.
Stone, J. P.	1 Ch. E.	516 Holt St.	Raleigh, N. C.
Stone, J. R., Jr.	3 E. E.	225 Syme, 3557.	Durham, N. C.
Strauss, H. C.	2 Aero. E.	307 Alexander, 4172.	Winston-Salem, N. C.
Strauss, Ira, Jr.	2 Tex.	135 Alexander, 4128.	Woodmere, N. Y.
Strawbridge, E. M.	3 M. E.	306 Gold, 3230.	Durham, N. C.
Strickland, L. E.	1 Ag.	Withdrew	Middlesex, N. C.
Strickland, P. D.	2 Tex.	2219 Circle Drive.	Raleigh, N. C.
Strong, H. G.	3 Ch. E.	116 Woodburn Rd.	Raleigh, N. C.
Strother, W. R.	2 Tex.	R. F. D. 1, Cary.	Cary, N. C.
Stroud, A. H.	2 Ag. Ed.	324 Alexander, 4187.	Pink Hill, N. C.
Stroud, Ray	2 Aero. E.	123 Syme, 3523.	Wilkesboro, N. C.
Stroupe, G. N.	3 M. E.	225 Syme, 3557.	Morganton, N. C.
Strum, P. D.	3 E. E.	308 Gold, 3232.	Rocky Mount, N. C.
Stuart, A. N.	4 Tex.	106 Gold, 3206.	Snow Camp, N. C.
Stuart, N. B., Jr.	1 M. E.	Cary, Rt. No. 1.	Cary, N. C.
Stuart, R. F., Jr.	3 Ag. Ed.	315 Syme, 3579.	Rowland, N. C.
Stuart, W. G., Jr.	1 Aero.	2320 Whitaker Dr.	Raleigh, N. C.
Sugg, N. L.	2 Gen. E.	101 Turlington, 4200.	Pinetops, N. C.
Sullam, Victor	5 Ag.	114 1911	Raleigh, N. C.
Sullivan, Charles Scott	3 Ag.	128 Syme, 3528.	Asheville, N. C.
Sullivan, Charles Spencer	2 M. E.	2407 Clark Ave.	Greensboro, N. C.
Sullivan, E. T.	4 For.	Withdrew	Pouglaston, L. I., N. Y.
Summers, L. N., Jr.	4 Ag. Ed.	212 Watauga, 3030.	Statesville, N. C.
Summers, P. F.	1 Aero. E.	2008 Hillsboro St.	Greensboro, N. C.
Summey, R. E., Jr.	1 Ag.	218 Becton, 3752.	Dallas, N. C.
Sumner, J. W.	4 Ag. Ed.	18 Syme, 3614.	Conway, N. C.
Suniewick, J. L.	3 Ch. E.	101 Syme, 3501.	S. Bound Brook, N. J.
Suttenfield, W. H., Jr.	4 Tex.	4 Fern dell Lane.	Charlotte, N. C.
Sutton, D. L.	1 E. E.	338 Alexander, 4198.	Clinton, N. C.
Swaringen, C. T., Jr.	1 E. E.	230 Becton, 3764.	Greensboro, N. C.
Swartz, M. M.	1 E. E.	302 Berry, 4322.	Dorchester, Mass.
Sweet, H. M.	4 M. E.	208 Watauga, 3026.	Spencer, N. C.
Sweet, J. A.	2 M. E.	303 Watauga, 3039.	Southern Pines, N. C.
Swift, J. S.	1 Gen. E.	F-6 Raleigh Apts.	Raleigh, N. C.
Swinney, J. G. C., Jr.	4 E. E.	117 Syme, 3517.	Draper, N. C.
Sykes, W. A., Jr.	1 Aero. E.	302 Alexander, 4168.	Greensboro, N. C.
Symmes, L. B., Jr.	1 Aero.	Withdrew	Wilmington, N. C.
Talbot, C. C.	2 Tex.	307 Turlington, 4271.	Fayetteville, N. C.
Tarkington, W. W.	4 Tex.	2513 Clark Ave.	Manteo, N. C.
Tarleton, C. F.	2 Ag. Ed.	106 Welch, 3242.	Marshville, N. C.
Tarleton, J. P.	1 Tex.	207 Becton, 3741.	Peachland, N. C.
Tart, J. R.	1 Ind. A.	104 Bagwell, 3304.	Dunn, N. C.
Tart, N. M.	1 Ag.	2224 Hillsboro St.	Dunn, N. C.
Taylor, A. F.	4 Tex.	239 Alexander, 4165.	New Bedford, Mass.
Taylor, B. H.	2 Ag.	201 Gold, 3213.	Tarboro, N. C.
Taylor, C. J.	1 M. E.	208 Berry, 4375.	Pinehurst, N. C.
Taylor, D. B., III	2 M. E.	329 Turlington, 4291.	Chimney Rock, N. C.
Taylor, G. E.	1 Aero.	316 Alexander, 4179.	Roxboro, N. C.
Taylor, G. S.	4 Ag. Ed.	18 Syme, 3614.	Jackson, N. C.

## STUDENT DIRECTORY

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<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Taylor, H. G., Jr.	2 Ch. E.	205 Watauga, 3023	Greensboro, N. C.
Taylor, H. S., Jr.	1 Ag.	324 Becton, 3792	Hookerton, N. C.
Taylor, J. B., Jr.	1 Aero.	312 Berry, 4332	Williamston, N. C.
Taylor, J. H.	1 E. E.	210 W. Morgan	Robersonville, N. C.
Kaylor, K. M.	1 C. E.	106 Horne St.	Corinth, N. C.
Taylor, M. K.	3 Aero.	111 Syme, 3511	Seaboard, N. C.
Taylor, N. L.	1 Ch. E.	317 Becton, 3785	Wilmington, N. C.
Taylor, P. W.	1 Ag. Ed.	126 Alexander, 4121	Enfield, N. C.
Taylor, R. G.	4 M. E.	2513 Clark Ave.	High Point, N. C.
Taylor, R. H.	1 Ch. E.	205 Clark, 4414	Snow Hill, N. C.
Taylor, W. P.	3 Tex.	Cameron Court Apts. W-2-A	George, N. C.
Teachey, I. B., Jr.	2 Aero.	205 Forest Rd.	Wallace, N. C.
Teague, E. L., Jr.	1 Ag.	9 Field House	Washington, D. C.
Teague, H. W.	2 Ag. Ed.	105 Turlington, 4204	Taylorsville, N. C.
Teass, J. A.	1 Ag.	130 Woodburn Rd.	Bedford, N. C.
Teiser, S. A.	2 Ch. E.	317 Syme, 3581	Henderson, N. C.
Temple, L. M.	2 Ch. E.	214 Alexander, 4143	Sanford, N. C.
Templeton, J. S.	1 Tex.	337 Turlington, 4296	Mooreville, N. C.
Terry, H. L.	4 For.	208 Watauga, 3026	Spencer, N. C.
Thigpen, J. I.	1 Aero.	3008 Ruffin St.	Pulaski, Va.
Thomas, A. W.	2 Cer. E.	104 Logan Court	Farmville, N. C.
Thomas, C. C.	2 Ag. Ed.	107 Welch, 3243	Broadway, N. C.
Thomas, G. M., Jr.	3 Ag. Ed.	120 Forest Rd.	Cameron, N. C.
Thomas, H. G.	1 E. E.	Garner, N. C.	Polkton, N. C.
Thomas, R. C.	1 M. E.	2220 Hillsboro St.	Westfield, N. J.
Thomas, W. C.	1 C. E.	211 Becton, 3745	Woodlawn, N. C.
Thomaston, J. W.	4 Aero.	206 Syme, 3538	Roanoke Rapids, N. C.
Thompson, B. E., Jr.	1 Ch. E.	120½ Groveland Ave.	Rocky Mount, N. C.
Thompson, F. F., Jr.	1 Ch. E.	210 Woodburn Rd.	Fairmont, N. C.
Thompson, G. E.	1 Ag.	113 Bagwell, 3313	Lumberton, N. C.
Thompson, H. A.	1 M. E.	400 Kinsey St.	Raleigh, N. C.
Thompson, J. C., Jr.	1 For.	210 W. Morgan St.	High Point, N. C.
Thompson, J. G.	1 C. E.	2404 Hillsboro St.	Greensboro, N. C.
Thompson, J. N.	1 Gen. E.	2302 Hillsboro St.	Reidsville, N. C.
Thompson, W. R.	3 Ag.	11 Y.M.C.A.	Black Creek, N. C.
Thornburg, H. L.	1 C. E.	8 Ferndell Lane	Candor, N. C.
Thorp, H. D.	1 M. E.	219 Bagwell, 3351	Rocky Mount, N. C.
Thrasher, G. R.	1 Ag.	20 Logan Court	Norfolk, Va.
Throckmorton, W. S.	3 Ag.	328 Syme, 3592	Long Branch, N. J.
Thurman, E. B.	2 Cer. E.	702 N. Blount St.	Raleigh, N. C.
Thurman, J. R., III	2 Ch. E.	228 Alexander, 4157	High Point, N. C.
Tilley, R. K.	1 Ag.	Withdrew	Mt. Airy, N. C.
Tillinghast, N. W., Jr.	1 Aero.	305 Alexander, 4171	Fayetteville, N. C.
Timberlake, T. T.	1 Ag. Ed.	229 Bagwell, 3361	Timberlake, N. C.
Todd, F. A.	4 Ag. Ed.	2512 Clark Ave.	Wendell, N. C.
Toffoli, P. V., Jr.	4 Aero.	304 Watauga, 3040	Charlotte, N. C.
Tolan, H. S., Jr.	2 Aero.	327 Turlington, 4289	Belhaven, N. C.
Travis, E. O.	2 M. E.	2405 Clark Ave.	Raleigh, N. C.
Travis, M. L.	1 Arch.	324 Becton, 3792	Conover, N. C.
Traylor, R. L., Jr.	1 E. E.	110 Turlington, 4207	Norlina, N. C.
Trentham, H. L.	3 Ch. E.	23 Becton, 3824	Mars Hill, N. C.
Trexler, B. D.	1 Tex.	232 Becton, 3766	Wadesboro, N. C.
Trexler, H. F.	4 Gen. E.	214 Watauga, 3032	Wadesboro, N. C.
Tripp, J. D.	3 Ag. Ed.	212 Welch, 3260	Blount's Creek, N. C.
Troster, Gregg	2 E. E.	233 Alexander, 4161	Greensboro, N. C.
Trotter, G. R., Jr.	2 Aero.	111 Alexander, 4108	Morganton, N. C.
Trotter, W. H.	2 Ch. E.	138 Alexander, 4130	Washington, D. C.
Troutman, J. M., Jr.	4 Ag.	15 Syme, 3611	Statesville, N. C.
Troxler, R. T.	4 Ind. A.	111 Bagwell, 3311	Elon College, N. C.
Troy, E. F.	2 E. E.	1720 Hillsboro St.	Wilmington, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Tucker, R. B.	1 C. E.	20 Logan Court	Raleigh, N. C.
Tull, I. N., Jr.	1 E. E.	208 Berry, 4315	Shaker Hts., Ohio
Turnage, L. E.	1 Ag.	135 Alexander, 4128	Farmville, N. C.
Turner, T. M.	4 Gen. E.	207 Watauga, 3025	Washington, D. C.
Turner, W. D., Jr.	1 Aero.	312 Bagwell, 3378	Greenville, N. C.
Turner, W. L.	2 Ag.	321 Alexander, 4184	Rocky Mount, N. C.
Tuten, S. A., Jr.	3 Ag. Ed.	212 Welch, 3260	Edward, N. C.
Tynes, C. H.	1 E. E.	2220 Hillsboro St.	Kelford, N. C.
Tyson, J. B.	1 Tex.	508 Oakwood Ave.	Greenville, N. C.
Tyson, R. C.	1 C. E.	125 Woodburn Rd.	Fayetteville, N. C.
Umstead, N. E.	1 Ch. E.	316 Bagwell, 3382	Roxboro, N. C.
Upchurch, W. M., Jr.	3 M. E.	301 Gold, 3225	Durham, N. C.
Upton, F. E., Jr.	4 C. E.	213 Syme, 3545	Camden, N. C.
Urash, R. N. M.	3 Geol. E.	315 Alexander, 4178	Woodside, N. Y.
Uttley, E. E.	1 M. E.	Withdrew	Moncure, N. C.
Uzzell, T. R., Jr.	1 Gen. E.	119 Becton, 3719	Wilson, N. C.
Vaden, Jim	1 Arch. E.	2220 Hillsboro St.	Asheville, N. C.
Van Arsdale, W. D., Jr.	4 E. E.	2404 Hillsboro St.	East Orange, N. J.
Vance, F. K.	4 E. E.	302 Fourth, 3128	Winston-Salem, N. C.
Van Hoy, H. A.	2 Ag.	221 Syme, 3553	Union Grove, N. C.
Vanhoy, W. C.	1 Tex.	210 Becton, 3744	Burlington, N. C.
VanLandingham, G. P.	3 Gen. E.	228 Syme, 3560	Greensboro, N. C.
Van Leer, B. W.	1 Aero.	203 Clark, 4412	Washington, D. C.
Vann, J. G., Jr.	3 Cer. E.	1606 Scales St.	Raleigh, N. C.
Vaughn, F. A.	1 Ag.	314 Turlington, 4276	Dolphin, Va.
Vaughn, S. C., Jr.	3 Ch. E.		Charlotte, N. C.
Vaughn, W. O.	1 M. E.	130 Woodburn Rd.	Winston-Salem, N. C.
Vause, J. I.	3 Ag.	312 Gold, 3236	Kinston, N. C.
Venable, H. D.	1 M. E.	110 Bagwell, 3310	Pilot Mtn., N. C.
Vernon, H. E.	4 Ag.	10 Syme, 3606	Blanch, N. C.
Vernon, W. R.	1 Aero.	2202 Hillsboro St.	Milton, N. C.
Verrill, H. S.	3 Tex.	2407 Clark Ave.	Cumberland Mills, Me.
Vick, A. R.	1 E. E.	232 Bagwell, 3364	Kelford, N. C.
Victor, R. L.	1 Ch. E.	107 Clark, 4407	Teaneck, N. J.
Vining, J. M., Jr.	1 M. E.	101 Fourth, 3111	Hamlet, N. C.
Wade, C. B.	1 C. E.	224 Woodburn Rd.	Raleigh, N. C.
Wade, L. V.	1 Ch. E.	312 Becton, 3780	Greensboro, N. C.
Wade, W. E., Jr.	2 Aero.	11 Maiden Lane	Raleigh, N. C.
Wagoner, F. H.	3 Ag.	117 Turlington, 4214	Gibsonville, N. C.
Wagoner, J. B.	3 Ag.	117 Turlington, 4214	Gibsonville, N. C.
Wagoner, L. W.	2 Aero.	313 Turlington, 4275	Hamptonville, N. C.
Wakely, Elaine	5 Ag. Ec.	Apt. F-4 Grosvenor Gardens	Raleigh, N. C.
Wakeley, J. T.	5 Ru. Soc.	Apt. F-4 Grosvenor Gardens	Raleigh, N. C.
Walcoff, Harry	2 Tex.	1304 Hillsboro St.	Trenton, N. J.
Walker, G. W.	3 Ag.	203 Gold, 3215	Murphy, N. C.
Walker, S. E.	Aud.	P-2-A Cameron Court Apts.	Raleigh, N. C.
Wall, P. N.	4 Tex.	21 Enterprise St.	Concord, N. C.
Wall, R. L.	2 C. E.	302 Gold, 3226	Madison, N. C.
Wallace, J. J.	2 Ch. E.	124 N. Bloodworth	Raleigh, N. C.
Wallace, Martha L.	1 Tex.	1200 Glenwood Ave.	Raleigh, N. C.
Wallace, W. D.	1 Aero.	3 Berry, 4336	Wilmington, N. C.
Waller, H. A., Jr.	1 E. E.	128 Bagwell, 3328	Winston-Salem, N. C.
Waller, S. K.	1 Ag.	202 Groveland Ave.	Mt. Olive, N. C.
Walser, R. F.	1 C. E.	219 Syme, 3551	Greensboro, N. C.
Ward, C. H.	2 Tex.	131 Turlington, 4227	High Point, N. C.
Ward, D. L.	1 E. E.	7 Berry, 4340	Thomasville, N. C.
Ward, E. H.	4 For.	2209½ Hope St.	Raleigh, N. C.
Ward, F. B.	1 E. E.	320 Bagwell, 3386	Badin, N. C.
Ward, J. H., Jr.	2 Ch. E.	134 Woodburn Rd.	Raleigh, N. C.
Ward, R. B., Jr.	2 E. E.	18 Horne St., Apt. No. 3	Charlotte, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Ward, R. L.	2 Aero.	18 Horne St., Apt. No. 3	Charlotte, N. C.
Ward, R. S.	2 Tex.	8 Ferndell Lane	Nashville, N. C.
Ward, R. V., Jr.	1 M. E.	131 Becton, 3731	Lexington, N. C.
Wariner, R. G.	1 Aero.	111 Becton, 3711	Leaksville, N. C.
Warren, C. J.	1 E. E.	224 Woodburn Rd.	Vanceboro, N. C.
Warren, D. H.	1 Ch. E.	223 Bagwell, 3355	Wilson, N. C.
Warren, D. R., Jr.	3 Ag.	2209½ Hope St.	Dunn, N. C.
Warren, Edward, Jr.	2 Tex.	215 Alexander, 4144	Wilson, N. C.
Warren, J. A.	4 Ag. Ed.	111 Gold, 3211	Roseboro, N. C.
Warrington, C. W., Jr.	2 E. E.	302 Turlington, 4267	New Bern, N. C.
Watkins, G. S.	1 E. E.	105 Bagwell, 3305	Charlotte, N. C.
Watkins, M. P.	3 Syme.	327 Syme, 3591	Norwood, N. C.
Watlington, H. C.	4 Ch. E.	105 Watauga, 3005	Spencer, N. C.
Watson, D. M.	2 Aero.	1621 Bickett Blvd.	Raleigh, N. C.
Watson, D. S.	1 M. E.	206 Clark, 4415	Knightdale, N. C.
Watson, E. G.	1 M. E.	130 Bagwell, 3330	Winston-Salem, N. C.
Watson, J. C., Jr.	1 Ch. E.	203 Becton, 3737	Greensboro, N. C.
Watson, J. L.	1 C. E.	310 Becton, 3778	New Bern, N. C.
Watson, T. L., Jr.	4 E. E.	21 Enterprise St.	Wilson, N. C.
Watt, H. W.	4 Ind. E.	209 Syme, 3541	Charlotte, N. C.
Watts, J. M., Jr.	4 Ag.	16 Syme, 3612	Statesville, N. C.
Watts, J. W., Jr.	1 Gen. E.	120 Becton, 3720	Williamston, N. C.
Watts, L. A., Jr.	1 M. E.	840 W. Morgan St.	Raleigh, N. C.
Watts, S. S.	1 E. E.	4 Maiden Lane	Taylorsville, N. C.
Waynick, A. P.	2 Tex.	316 Watauga, 3052	Greensboro, N. C.
Waynick, D. L.	2 Tex.	318 Turlington, 4280	Greensboro, N. C.
Weatherly, R. M.	3 M. E.	217 Syme, 3549	Greensboro, N. C.
Weathers, L. L.	1 Aero.	17 Becton, 3819	Wake Forest, N. C.
Weaver, D. B.	1 M. E.	520 Daughtridge St.	Raleigh, N. C.
Weaver, R. E.	4 Ch. E.	105 Gold, 3205	Asheville, N. C.
Weaver, S. A.	1 Gen. E.	19 Becton, 3820	Hickory, N. C.
Webb, G. F.	1 Aero.	215 Becton, 3749	Winston-Salem, N. C.
Weeks, J. L.	1 Tex.	125 Syme, 3525	Halifax, N. C.
Weeks, J. O.	1 Ag.	304 Alexander, 4170	Scotland Neck, N. C.
Weeks, M. G.	1 Ag.	108 Syme, 3508	Stella, N. C.
Weinreich, Howard	1 Aero.	222 Park Ave.	Lawrence, L. I., N. Y.
Weiss, Allan	1 Ag.	114 Bagwell, 3314	Far Rockaway, N. Y.
Weiss, T. S.	1 M. E.	205 Bagwell, 3337	Greenwich, Conn.
Welch, F. P.	1 Ag.	231 Bagwell, 3363	Lawrence, Mass.
Welch, S. W. J., Jr.	Aud.	206 Tompkins	
Wellons, J. F., Jr.	1 M. E.	107 Becton, 3707	Kenly, N. C.
Werner, A. M.	2 M. E.	305 Syme, 3569	New York, N. Y.
Wesson, R. H.	4 Ag.	16 Syme, 3612	Littleton, N. C.
West, J. E., Jr.	1 Ind. E.	4 Maiden Lane	Dunn, N. C.
West, S. G., Jr.	3 Aero.	2407 Clark Ave.	Greensboro, N. C.
Westbrook, S. E.	2 Ag.	2209½ Hope St.	Dunn, N. C.
Westphal, P. L.	2 Tex.	323 Alexander, 4186	Hollis, N. Y.
Wetmore, J. B.	1 Ag. Ed.	23 Logan Court	Woodleaf, N. C.
Wetzler, F. U.	1 E. E.	222 Park Ave.	New Haven, Conn.
Weyne, J. M.	1 M. E.	1712 Park Dr.	Nieuwpoort, Belgium
Wharton, W. L., Jr.	3 For.	2407 Clark Ave.	Winston-Salem, N. C.
Wheatley, R. B., Jr.	1 M. E.	26 Becton, 3826	Washington, N. C.
Wheless, C. M.	1 E. E.	314 Bagwell, 3380	Louisburg, N. C.
Whetstone, G. W.	2 Ag.	136 Turlington, 4231	Cape May, N. J.
White, E. S.	4 Ag. Ed.	112 Gold, 3212	Colerain, N. C.
White, J. C.	2 Aero.	210 Welch, 3258	Elizabethtown, N. C.
White, J. E.	1 Ch. E.	601 Hinsdale St., Apt. No. 3	Raleigh, N. C.
White, J. L., Jr.	1 Arch. E.	14 Horne St., Apt. B	Burlington, N. C.
White, J. R.	3 M. E.	12 Horne St.	Elizabethtown, N. C.
White, K. H.	2 Tex.	222 Hillcrest Rd.	Chester, S. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
White, L. W., Jr.	1 E. E.	2202 Hillsboro St.	Washington, N. C.
Whitehurst, S. L.	1 Ag.	222 Hillcrest Rd.	New Bern, N. C.
Whitehurst, T. B., Jr.	2 Aero.	206 Syme, 3570	Greensboro, N. C.
Whitehurst, W. B.	4 Tex.	306 Syme, 3570	Greensboro, N. C.
Whitener, W. J.	3 Cer. E.	121 Syme, 3521	Gastonia, N. C.
Whiteside, Blount, Jr.	1 C. E.	334 Bagwell, 3400	Clinton, N. C.
Whitfield, G. B.	1 M. E.	217 Syme, 3549	Asheboro, N. C.
Whitfield, H. A., Jr.	3 M. E.	7 Enterprise St.	Chapel Hill, N. C.
Whitfield, J. K.	3 M. E.	217 Syme, 3549	Asheboro, N. C.
Whitfield, J. M.	1 C. E.	215 Bagwell, 3347	Clinton, N. C.
Whitford, M. G.	1 M. E.	108 Clark, 4408	Goldsboro, N. C.
Whittle, H. H., Jr.	1 Ch. E.	308 Berry, 4328	Concord, N. C.
Wicker, W. J.	1 M. E.	1908 Park Dr.	Sanford, N. C.
Wickham, C. J.	1 Ch. E.	2212 Hope St.	New Carlisle, Ind.
Widenhouse, P. W.	1 Aero.	304 Horne St.	Concord, N. C.
Wiggins, C. A., Jr.	3 M. E.	130 Syme, 3530	Kinston, N. C.
Wiggins, E. H.	1 Ind. A.	216 Syme, 3548	Edenton, N. C.
Wiggins, G. T.	3 Ag.	113 Turlington, 4210	Mt. Olive, N. C.
Wiggs, James Handy, Jr.	1 E. E.	Withdrew	Smithfield, N. C.
Wiggs, John Henry	1 Tex.	304 Watauga, 3040	Rocky Mount, N. C.
Wiley, T. A., Jr.	3 Aero.	103 Chamberlain St.	Coral Gables, Fla.
Wilkerson, R. T.	1 E. E.	1007 W. Lenoir St.	Raleigh, N. C.
Wilkins, W. E.	2 Tex.	2407 Clark Ave.	Greensboro, N. C.
Wilkinson, W. A., Jr.	2 Ch. E.	103 Chamberlain St.	Concord, N. C.
Willard, C. G.	2 M. E.	Power Plant, 5241	High Point, N. C.
Willard, R. P.	1 M. E.	307 Becton, 3775	Winston-Salem, N. C.
Willard, R. T.	2 E. E.	129 Turlington, 4226	High Point, N. C.
Williamowsky, D. J.	4 M. E.	206 Watauga, 3024	Washington, D. C.
Williams, B. K., Jr.	1 Aero.	124 Becton, 3724	Cofield, N. C.
Williams, B. T., Jr.	1 Aero.	119 Bagwell, 3319	Stedman, N. C.
Williams, C. S., Jr.	1 Tex.	104 Logan Court	Kings Mtn., N. C.
Williams, D. E.	2 Ag.	Western Blvd., 5723	Raleigh, N. C.
Williams, D. L.	2 Ag. Ed.	135 Turlington, 4230	Yadkinville, N. C.
Williams, E. B.	1 E. E.	224 Woodburn Rd.	Portsmouth, Va.
Williams, H. C.	2 Aero.	103 Turlington, 4202	Middlesex, N. C.
Williams, H. M., Jr.	1 Ag.	107 Fourth, 3117	Inez, N. C.
Williams, H. W.	1 Aero.	304 Becton, 3772	Charlotte, N. C.
Williams, J. A.	1 M. E.	314 Bagwell, 3380	Laurinburg, N. C.
Williams, J. F.	4 For.	134 Woodburn Rd.	Windsor, N. C.
Williams, J. H.	2 Ch. E.	138 Alexander, 4130	Gastonia, N. C.
Williams, J. P., Jr.	2 Ag.	110 Turlington, 4207	Norlina, N. C.
Williams, M. S.	4 Ag.	116 Forest Rd.	Hillsboro, N. C.
Williams, P. R.	1 Aero.	311 Bagwell, 3377	Wilson, N. C.
Williams, R. A.	1 M. E.	306 Berry, 4326	Siler City, N. C.
Williams, R. G.	1 Aero.	222 Turlington, 4250	Rocky Mount, N. C.
Williams, T. G.	3 Arch.	304 Welch, 3264	Greensboro, N. C.
Williams, T. L.	1 Ag.	4 Berry, 4337	Yadkinville, N. C.
Williams, V. S.	1 E. E.	201 Berry, 4308	Kinston, N. C.
Williams, W. M.	1 Arch.	136 Woodburn Rd.	Mt. Olive, N. C.
Williamson, B. P.	1 Aero.	323 Turlington, 4285	
Williamson, J. C., Jr.	4 Ag.	203 Syme, 3534	Bethel, N. C.
Williamson, R. E.	2 Ag.	106 Syme, 3506	Wilson, N. C.
Williford, W. C.	2 Ag.	208 Welch, 3256	Elm City, N. C.
Willis, T. G.	1 M. E.	2902 Everett Ave.	Raleigh, N. C.
Wilson, C. E., Jr.	3 E. E.	305½ Calvin Rd.	Raleigh, N. C.
Wilson, F. L.	2 Ag. Ed.	205 Syme, 3537	Jonesboro, N. C.
Wilson, H. H., Jr.	1 Ch. E.	2706 Vanderbilt Ave.	Raleigh, N. C.
Wilson, James Alvin	1 Ag. Ed.	111 Bagwell, 3311	Scotland Neck, N. C.
Wilson, John Allison	3 Ag.	205 Gold, 3217	Louisburg, N. C.
Wilson, J. C., Jr.	2 M. E.	203 Alexander, 4135	Gastonia, N. C.

<i>Name</i>	<i>Classification</i>	<i>School Address</i> <i>Dorm. Box No. or St. No.</i>	<i>Home Address</i>
Wilson, J. S.	1 Arch. E.	118 Becton, 3718	Monroe, N. C.
Wilson, J. W., Jr.	2 Ag. Ed.	212 Gold, 3224	Louisburg, N. C.
Wilson, L. F.	1 M. E.	7 Becton, 3809	Roxboro, N. C.
Wilson, L. H., Jr.	2 Cer. E.	212 Watauga, 3030	Greensboro, N. C.
Wilson, R. J.	1 Ch. E.	206 Welch, 3254	Canton, N. C.
Wilson, R. V., Jr.	1 C. E.	212 Clark, 4421	Kernersville, N. C.
Wilson, W. A., Jr.	1 C. E.	305 Berry, 4325	Timberlake, N. C.
Winborne, W. T.	4 Ag. Ed.	2512 Clark Ave.	Bailey, N. C.
Winfrey, I. E., Jr.	4 C. E.	304 Syme, 3568	Winston-Salem, N. C.
Winn, W. C.	2 Aero.	4 Ferndell Lane	Norfolk, Va.
Winslow, A. T.	4 Tex.	222 Syme, 3554	Scotland Neck, N. C.
Winstead, B. E., Jr.	3 M. E.	310 Welch, 3270	Rocky Mount, N. C.
Winstead, N. N.	1 Ag.	205 Becton, 3739	Leasburg, N. C.
Winston, E. H.	4 Tex.	240 Alexander, 4166	New York, N. Y.
Winston, T. B.	1 Ch. E.	118 E. Park Dr.	Raleigh, N. C.
Winters, M. J.	1 C. E.	125 Woodburn Rd.	Fort Bragg, N. C.
Witherspoon, H. K., Jr.	1 Arch. E.	2630 Fairview Rd.	Raleigh, N. C.
Witherspoon, J. M.	2 Ch. E.	121 Turlington, 4218	Lexington, N. C.
Witten, F. C.	2 Aero.	222 Turlington, 4250	Gastonia, N. C.
Wolhar, C. J.	1 Ch. E.	102 Becton, 3702	Roanoke Rapids, N. C.
Womack, J. L., Jr.	1 Aero.	105 Becton, 3705	Reidsville, N. C.
Wommack, W. W.	4 Ch. E.	114 Watauga, 3014	Winston-Salem, N. C.
Wood, B. F.	2 Aero.	224 Syme, 3556	Graham, N. C.
Wood, D. M., Jr.	1 M. E.	121 Becton, 3721	Hamlet, N. C.
Wood, E. A., Jr.	2 M. E.	226 Turlington, 4254	Andrews, N. C.
Wood, J. F., Jr.	1 C. E.	210 Clark, 4419	High Point, N. C.
Wood, R. B.	3 Aero.	6 Ferndell Lane	Tampa, Fla.
Wood, R. N.	2 Ag.	224 Syme, 3556	Graham, N. C.
Wood, R. W.	4 For.	134 Woodburn Rd.	Staten Island, N. Y.
Woodall, E. L., Jr.	4 Cer. E.	112 Watauga, 3012	Smithfield, N. C.
Woodall, R. P.	1 Ch. E.	333 Becton, 3801	Smithfield, N. C.
Woodall, W. L.	1 Aero.	301 Becton, 3769	Smithfield, N. C.
Woodard, G. V.	3 Ag.	302 Welch, 3262	Spring Hope, N. C.
Woodard, J. R.	1 Ag.	125 Alexander, 4120	Spring Hope, N. C.
Woodside, T. F.	2 E. E.	124 Turlington, 4221	Charlotte, N. C.
Woodson, H. S., Jr.	1 Aero.	206 Chamberlain St.	Shelby, N. C.
Woody, R. Q., Jr.	1 E. E.	Withdrew	Bryson City, N. C.
Woollen, J. W.	2 C. E.	325 Alexander, 4188	High Point, N. C.
Wooley, C. B., Jr.	3 E. E.	309 Alexander, 4173	Charlotte, N. C.
Workman, J. M., Jr.	2 Aero.	205 Alexander, 4137	Charlotte, N. C.
Worrell, T. S.	4 Ch. E.	2407 Clark Ave.	Mt. Airy, N. C.
Worth, G. W.	3 Arch. E.	500 Whitaker Mill Rd.	Raleigh, N. C.
Wright, C. S.	2 E. E.	112 Syme, 3512	Raleigh, N. C.
Wright, E. E.	2 Ag.	115 Syme, 3515	Tabor City, N. C.
Wright, G. H.	4 M. E.	17 Syme, 3613	Laurinburg, N. C.
Wright, J. H., Jr.	1 Gen. E.	225 Becton, 3959	Middlesex, N. C.
Wright, J. R.	1 Aero.	203 Berry, 4310	Wilkesboro, N. C.
Wright, T. B.	1 Aero.	2305 Clark Ave.	Highlands, N. C.
Wroton, H. C.	1 Aero.	127 W. Park Dr.	Norfolk, Va.
Wynne, J. J.	2 Ch. E.	207 Alexander, 4138	Manchester, Mass.
Wynne, O. T.	1 For.	3 Becton, 3805	Asheville, N. C.
Yagolnitzer, P.	2 Tex.	331 Turlington, 4293	Bronx, N. Y.
Yandle, W. M., Jr.	1 Aero.	2514 Clark Ave.	Charlotte, N. C.
Yarborough, W. D., Jr.	1 Tex.	212 Clark, 4421	Elm City, N. C.
Yates, W. N.	1 C. E.	130 Becton, 3730	Hamlet, N. C.
Yoder, W. L., Jr.	4 E. E.	312 Watauga, 3048	Raleigh, N. C.
York, T. L.	4 Ag.	309 Watauga, 3045	Waynesville, N. C.
Young, B. L., Jr.	3 Aero.	317 Turlington, 4279	Salisbury, N. C.
Young, D. C.	1 Tex.	327 Bagwell, 3393	Charlotte, N. C.
Young, F. E., Jr.	1 M. E.	4 Berry, 4337	Oxford, N. C.

## NORTH CAROLINA STATE COLLEGE

Name	Classification	School Address Dorm. Box No. or St. No.	Home Address
Young, M. P., Jr.	4 E. E.	22 Syme, 3618	Princeton, N. C.
Young, R. K.	2 Ch. E.	304 Turlington, 5133	Cramerton, N. C.
Yount, J. H.	2 C. E.	219 Alexander, 4148	Newton, N. C.
Younts, W. E., Jr.	3 Ag.	6 Syme, 5127	Greensboro, N. C.
Yow, E. C., Jr.	2 C. E.	131 Syme, 3531	Fayetteville, N. C.
Zachary, O. A., Jr.	1 C. E.	312 Bagwell, 3378	Decatur, Ga.
Zachary, R. A., Jr.	2 E. E.	303 Syme, 3567	Charlotte, N. C.
Zeckendorf, S. L.	3 Ag.	320 Syme, 3584	Newark, N. J.
Zeigler, C. E.	1 Ch. E.	221 Becton, 3755	Gastonia, N. C.
Ziener, A. R.	1 Tex.	306 Brooks Ave.	Valley Stream, N. Y.
Zion, R. W.	2 Ch. E.	131 Alexander, 4126	Philadelphia, Pa.
Zuckerman, B. M.	2 For.	327 Turlington, 4289	New York, N. Y.









